ASX Announcement 25 February 2019

ASX: BOE

149% Increase in Measured & Indicated Mineral Resources over Honeymoon Re-start Area

HIGHLIGHTS

- A 30% increase in Mineral Resource over Honeymoon's Re-start Area to 36Mlb U_3O_8, being 24Mt at 660 ppm U_3O_8 for 36Mlbs U_3O_8
- Honeymoon global Mineral Resource now stands at 71.6 Mlbs U_3O_8, 52Mt at 620 ppm U_3O_8
- Mining License 6109 (ML6109) sits on top of the Re-start Area, containing 34Mlb U_3O_8 of metal, 25Mlb U_3O_8 falls within Measured and Indicated Mineral Resource categories
- ML6109 is fully permitted for international export and will provide the initial feed source of uranium for a successful Re-start and future expansion of production
- Exploration strategy designed to further increase the global resource underway

Boss Resources Limited (ASX: BOE) is pleased to announce an updated Mineral Resource estimate (JORC 2012) over its targeted Re-start Area which contains Mining Licence ML6109 (ML6109), the designated feed source of uranium for a successful Re-start and future expansion of production at the Company's 100%-owned Honeymoon Uranium Project in South Australia.

The updated Mineral Resource for the Re-Start Area includes the Brooks Dam, Honeymoon and East Kalkaroo deposits totals 24Mt at 660ppm U_3O_8 for 36 Mlbs U_3O_8, using a cut-off grade of 250 ppm. This represents an **overall 30% increase in metal mass** from the previously-reported Mineral Resource estimate[1]. ML6109 sits on top of the Re-Start Area and the updated mineral resource highlights a **149% increase in Measured and Indicated status**, totalling 27Mlbs at 690ppm U_3O_8.

The resulting effect on the Honeymoon Project's combined Mineral Resource **is an increase of 13% to 52.4Mt** with an average grade of 620 ppm U_3O_8 for 71.6Mlbs at a 250ppm cut-off.

Boss Resources Managing Director Duncan Craib said, *"Today's announcement provides further validation that Honeymoon is one of the few uranium projects worldwide positioned to participate in the early stages of a new bull market.*

"A 30% increase in Mineral Resource, covering a fully permitted mining licence ML6109 which is supported by an export license, will help fast-track the re-start of uranium production and facilitate off-take arrangements.

"We believe Honeymoon's global uranium endowment will increase through future exploration activity on our surrounding 100%-owned tenements."

[1] Refer ASX announcement date 15 March 2017

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The Mineral Resource upgrade is derived from the recent infill drilling and reinterpretation of historical data, and has been designed to deliver Measured and Indicated resources specifically on ML6109 as required for completion of the Definitive Feasibility Study and the endorsed Re-Start Strategy for the Honeymoon Uranium Project. Higher-grade pods currently in the Measured portion and within ML6109 will be initially targeted by existing and planned wellfields as depicted in Figure 1.

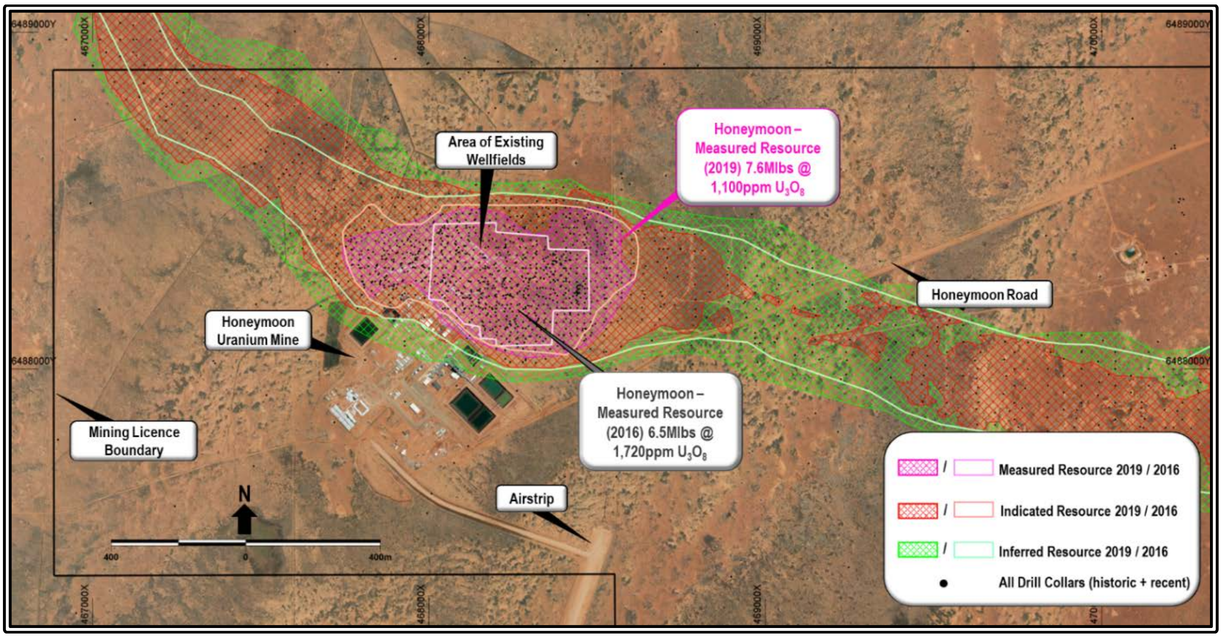

Figure 1: Comparison of Honeymoon ML6109 Mineral Resource Estimates – 2016 vs 2019

The Honeymoon Uranium Project possesses existing processing plant infrastructure and a fully permitted ML6109. No further permitting is required to extract uranium within ML6109 and accordingly, this will be the location of the wellfields that initially supply production.

Mineralisation is still open in multiple directions along strike and much of the palaeovalley remains relatively under-explored. Great potential exists for extending and adding to the currently-defined resource area as well as discovering new high-grade pods within the more complex areas of the palaeovalley.

2019 Mineral Resource Update

Honeymoon's upgraded Mineral Resource estimate is reported in accordance with the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code 2012). Compilation and creation of the working mineralisation and stratigraphical 3D models was completed in-house by the Boss Resources geology team, while the resource estimation and review of all data included in the upgrade, were undertaken independently by AMC Consultants, Perth.

The January 2019 Mineral Resource targeted the Re-Start Area of the Eastern Region of the Honeymoon Uranium Project, including the Brooks Dam, Honeymoon and East Kalkaroo deposits. **The Mineral Resource of this Re-Start Area now totals 24Mt at 660ppm U_30_8 for 36 Mlbs U_30_8** (see Table 1). This represents an overall 30% increase in contained metal mass from the previously reported Mineral

Resource for the same area[2]. Through additional drilling, revised interpretations, and management of the disequilibrium for the gamma data, approximately 70% of the existing Inferred Mineral Resource was converted to Indicated Mineral Resource, resulting in a significant 149% increase in the proportion of combined Indicated and Measured Mineral Resource that can now be considered for potential conversion to Ore Reserve through an updated Feasibility Study.

Table 1: Upgraded January 2019 Honeymoon Re-Start Area Mineral Resource[3]

Resource Classification	Tonnage (Million Tonnes)	Average Grade (ppm U_3O_8)	Contained Metal (Kt, U_3O_8)	Contained Metal (Mlb, U_3O_8)
Measured	3.1	1,100	3.4	7.6
Indicated	14	610	8.7	19
Inferred	7.0	590	4.1	9.1
Total	24	660	16	36

The combined **January 2019 Mineral Resources for the Honeymoon Uranium Project now stands at 52.4 Mt at 620 ppm** U_3O_8 **for 71.6 Mlbs U_3O_8** (see Table 2). This represents an overall 17% increase in contained metal mass from the previously reported global Mineral Resource estimate (JORC 2012).[2]

Table 2: Summary of upgraded Mineral Resource for the global Honeymoon Uranium Project:

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 Re-Start 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
TOTAL HONEYMOON URANIUM PROJECT				
Measured	3.1	1,100	3.4	7.6
Indicated	18.4	630	12.0	25.5
Inferred	30.9	570	18.0	38.5
Total	52.4	620	32.5	71.6

[2] Refer ASX announcement date 15 March 2017

[3] The Honeymoon Re-Start Area Mineral Resource excludes the separate Jason's Deposit Mineral Resource.
The model is reported unconstrained and above a 250 ppm U3O8 lower cut-off grade for all zones
Density is assigned as 1.9 t/m^3 on the basis of limited test work.
Model assumes agglomeration of 5mE x 5mN x [variable] mRL SMUs for definition of well fields for production.
Totals may vary due to rounded figures.

[4] Refer to ASX Announcement dated 8 April 2016

Honeymoon Uranium Project Summary

The Honeymoon Uranium Project is situated approximately 80 kilometres northwest of the town of Broken Hill, near the border of South Australia and New South Wales (Figure 2). The project is 100% owned by Boss Resources Ltd and covers a total area of 2,600 km^2 consisting of one granted Mining Licence, five granted Exploration Licences, three Retention Leases and two Miscellaneous Purpose Licenses.

The Project comprises two main resource areas (Figure 2):

1. The Eastern Region, which contains Honeymoon's Re-Start Area, (ML6109, EL6081 and EL5621) which hosts the Brooks Dam, Honeymoon, East Kalkaroo and separate Jason's Deposits; and
2. The Western Region (EL6020, EL5623 and EL5622) which hosts the Gould's Dam Deposit.

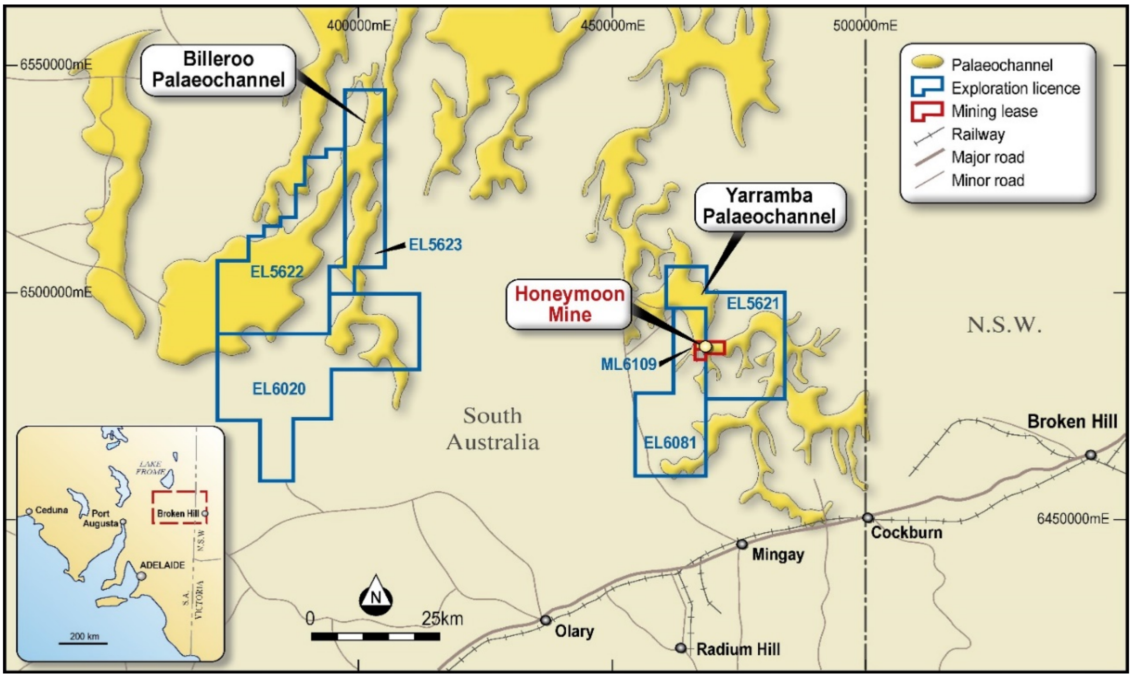

Figure 2: Honeymoon Uranium Project

An infill drilling campaign was conducted between June and December 2018. A total of 189 rotary mud holes were drilled for a total 23,386 metres. All holes were drilled vertically and designed to infill existing drilling to obtain an overall average drill spacing of 80m by 40m (required for the conversion of Inferred to Indicated Resource), or 40m by 20m (required for conversion of Indicated to Measured Resource).

Boss's geological team achieved a mineralisation interception success rate of over 96%, with the campaign producing the desired outcomes of verifying historical drill results, providing both the required grid spacing of drillholes and additional prompt fission neutron ("PFN") data in strategic areas, as well as resulting in the ultimate increase of the Mineral Resource for Honeymoon.

Each rotary mud hole was logged with a suite of downhole geophysical tools consisting of gamma, PFN, nuclear magnetic resonance (NMR or BMR), resistivity, induction, neutron porosity, self-potential conductivity, caliper and magnetic deviation. Results from the BMR tool provided extremely valuable information about the hydrological properties of the measured material, including total porosity, relative pore size distribution and estimated hydraulic conductivity. The data gathered from the combined downhole logging suite is also utilised in the continual improvement of the deposit-specific geology and mineralisation models. On a more regional scale, these models are being applied and continually reviewed to improve the exploration model.

Drill chips collected for geological logging were analysed with a handheld XRF (X-Ray Fluorescence) spectrometer to qualitatively measure sulphide and iron contents within the host sediments.

The compiled dataset formed from the collective results of the various tools created the most advanced modelling to date for mineral delineation on the Honeymoon Uranium Project. This dataset, together with chemical results of the XRF analysis and the updated lithostratigraphic/mineralisation models will be invaluable in optimising the design and development of the final wellfields.

A revised wellfield design criterion will be applied over the new Mineral Resource estimate to determine the optimal size and shape of a practical mineable area. The design methodology will be based on an Economic Grade Model (or grade times thickness, GT) and on the resource block model, to determine the minimum GT value for material that can be economically mined. A minimum GT of 650m.ppm is currently defined for an individual well. However, based on the newly updated resource grades, this figure will be reviewed as part of the ongoing Definitive Feasibility Study.

Honeymoon Uranium Deposit Model

Geology and Mineralisation Interpretation

Mineralisation on ML6109 is present in the form of tabular lenses in a palaeovalley-type, sandstone-hosted deposit associated with the vertical and lateral movement of oxidation-reduction interfaces and hosted within the sediments of the broad-scale, buried Yarramba Palaeovalley (Figure 3). The sediments infilling the buried palaeovalley are situated from approximately 70m below ground surface to a maximum depth of approximately 130m and filled by Palaeogene-aged, fining up sequences of sand, interbedded silts and clays. The valley systems were incised into the surrounding country bedrock of the Willyama Supergroup, and drain into Lake Frome to the northwest of the Project area.

Mineralisation characteristics are slightly different throughout the resource area, with the uranium ore situated at varying depths. This led to the decision to separate the deposit into 3 soft domains: comprising the Honeymoon deposit (100 – 120m) and shallower at the Brooks Dam and East Kalkaroo deposits (80 – 110m). The majority of the mineralisation is hosted in the Eyre Formation, with the tabular lenses distributed between the Lower, Middle and Upper parts of the Formation. A small part of the orebody is also hosted within the weathered saprolitic zone at the top of the basement bedrock.

This is unsurprising given that weathering and erosion processes have destroyed the integrity of the basement bedrock, increasing the porosity and permeability of the saprolite zone and allowing uraniferous groundwaters to flow through the top of the basement. The reduction and subsequent precipitation of the uranium from the oxidised aquifer water is likely explained by the sulphides inherent within the basement lithologies.

Another part of the reinterpretation and review exercise involved the creation of a working, three-dimensional stratigraphic model. This modelling process involved the interpretation of combined downhole geophysical data, XRF analysis from the drill chips, and geological logging from both the drill chips and sonic core to determine the depths of each of the stratigraphic contacts between the formations. The resulting model was utilised in the Mineral Resource estimation to more accurately group the zones into their associated stratigraphic positions within the Eyre Formation.

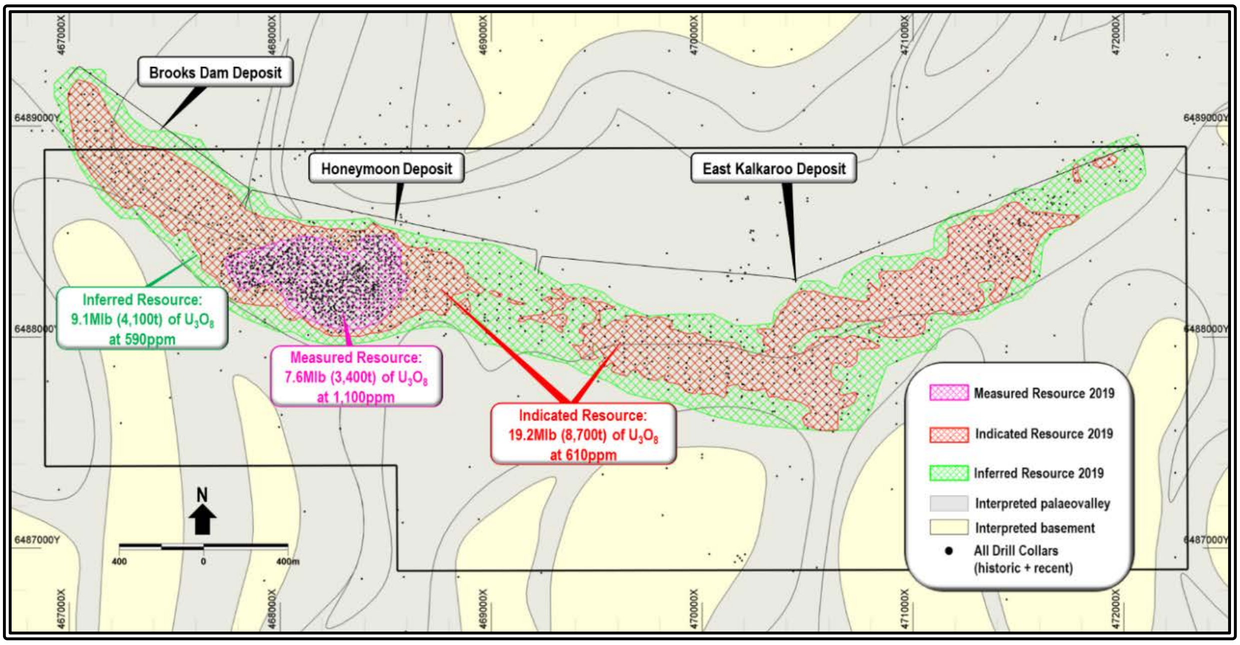

Figure 3: ML6109 Resource Area – distribution of mineralisation

Drilling and Sample Collection

***Drilling Methodology*:** The majority of drilling undertaken historically on Honeymoon has been completed using the rotary mud technique. Other historical fieldwork programs have also involved relatively small amounts of rotary air blast, diamond and sonic core, rotary mud with core tails, and rock bit drilling. Assay data has consisted predominantly of downhole geophysical logging comprising the use of tools such as natural gamma, resistivity, conductivity and density. Since 2003 downhole logging suite have included the use of PFN tools alongside the natural gamma, allowing the compilation of a large enough dataset with which to estimate the disequilibrium factor for the deposit.

The dataset used in the current Mineral Resource (JORC 2012) consisted of the uranium grades derived from both the downhole natural gamma and PFN logging. The Mineral Resource was estimated from the results of 2,325 rotary mud holes for 281,610 m, 47 rotary mud holes with core tails for 5,637 m, 19 diamond core holes for 4,159 m, 18 sonic holes for 2,184 m, 221 rotary air blast holes for 27,630 m and two rock bit holes for 242 m (a total of 2,632 holes for 321,462 drilled metres).

Density of Drilling: The majority of drilling activity has predominantly focused on the Eastern Region near-mine area including ML6109. Drill densities have also been variable through the different generations of drilling, with an average spacing of approximately 80m x 200m. The infill drilling undertaken in 2018 reduced the spacing to approximately 40m x 20m which is considered to be reasonable for the purpose of upgrading part of the existing Mineral Resource to Ore Reserve category. Uranium grade data was composited to 25cm intervals to aid in the geological interpretation and assignment of mineralisation to the respective zones.

A small sonic core program was completed at the end of 2018, consisting of nine holes for a total of 1,080m (included in the sub-total and total figures for drilling as described in the *"Drilling Methodology"* section above). The purpose of the sonic drilling was to provide physical samples for the purpose of verifying the uranium grades derived from the downhole PFN, and to provide samples for metallurgical testwork as part of the DFS. The results of the sonic drilling were not utilised directly in the Mineral Resource estimation process, however they have been reported here in Appendix 1.

Sampling and sub-sampling techniques: The principal assay collection method has been via downhole geophysical logging. Uranium grades for all drilling undertaken prior to 2003 were derived mostly from downhole natural gamma logging. A minor amount of physical sampling had also been conducted during the early diamond and sonic core programs, however these results were only used for verification of the gamma-derived assays. Since 2003, the predominant assay collection method has comprised a combination of downhole gamma and PFN logging data. Calibration of the gamma sondes was completed at the Glenside facility in Adelaide, while PFN tools were regularly calibrated in the calibration pits installed at the Honeymoon Uranium Mine itself, designed specifically for this purpose. Gamma data was collected at variable sample rates between 5 and 10cm, for the different generations of drilling. PFN logging data was collected at sample rates between 1 and 3cm. Assays collected from the 2018 infill drill program involved downhole PFN logging (Boss Resources) and a suite of gamma, Borehole Magnetic Resonance (BMR), self-potential (SP) conductivity, resistivity/induction, caliper and magnetic deviation, completed by independent contractor Wireline Services Group (Perth, W.A). Uranium grades estimated from the data collected by Wirelines Services was required as an independent verification of the corresponding grades calculated in-house from the Boss-owned PFN tools. All tools were maintained by specialised electronic companies and technicians based in Adelaide and Perth.

Sample Analysis Method: Standard industry procedures were used for geophysical logging of the drill holes and estimation from the geophysical logs for the eU_3O_8 (from the gamma-ray logs) and pU_3O_8 (from the PFN instruments) grades. Uranium grades (pU_3O_8) were calculated from the PFN tools after proper calibration and compositing to 25cm sample intervals. Calibrations of the PFN tools were

completed in the calibration pits installed at the Honeymoon Uranium Mine itself. Each of the calibration test pits was constructed at a particular hole size diameter, based on the most commonly used drill technique and corresponding hole sizes in the Honeymoon database. The appropriate calibration model was determined and subsequently applied to the PFN logging data, along with the relevant hole size correction factor.

In-hole radiometric uranium grade data was also determined by Wireline Services with equivalent gamma grades (eU_3O_8) determined from the post-calibration, downhole natural gamma-logs, moisture correction and disequilibrium correction factors, and were also composited to 25cm sample intervals. The natural gamma sondes were also calibrated at the Glenside calibration test pits in Adelaide and the appropriate calibration model and hole-size correction factors applied to the gamma data.

The downhole gamma tool measures gamma emission from particular daughter isotopes in the uranium radioactive decay series. If the parent ^{238}Uranium is in secular equilibrium with its respective daughter products, the response of the natural gamma is directly proportional to the amount of uranium in the surrounding formation. If, however, the concentration of gamma-emitting daughter isotopes is greater than that of the parent ^{238}Uranium, the environment is said to be in a state of secular "disequilibrium" and the resulting gamma data corrected accordingly in order to provide a more realistic uranium grade. The correction process for generation and application of the disequilibrium factors is discussed as part of the Mineral Resource estimation process.

The downhole PFN tool uses a safe, in-built neutron generator which emits pulses of neutrons (epithermal neutrons) into the surrounding formation. These neutrons are absorbed by the formation and interact directly with the uranium, resulting in fission and the subsequent generation of more neutrons (thermal neutrons). The energy released from this interaction pushes the neutrons back out of the formation, thus enabling detection by the PFN tool. The number of neutrons generated in the formation is therefore proportional to the amount of uranium present in the host sediments. The uranium grade is later derived from the ratio of epithermal to thermal neutrons, and application of the appropriate hole-size and calibration factors.

As part of the Company's QAQC procedures, an independent expert was engaged to review both the calibration data and the resulting PFN-derived uranium grade data prior to determining the upgraded Mineral Resource.

Mineral Resource Estimation Methodology

Geology and Interpretation*:* Mineralisation at Honeymoon is shown to be closely associated with the unconsolidated sediments that constitute the Eyre Formation. These sediments have filled the broad-scale palaeovalley, commonly known in literature as the Yarramba Palaeochannel, the base of which is situated at an average depth of approximately 120m within the area covered by ML 6109. All available drilling and downhole geophysical data were reviewed in-house by Boss Resources personnel in a deposit-wide reinterpretation exercise.

It should be noted that the uranium mineralisation hosted by palaeovalley, or narrower palaeochannel, systems is not always uniform in grade and tenor. There are often "pods", or shoots, of high-grade material accumulated in areas associated with either an increased concentration of a particular reductant or bounded by structural elements such as faults – the latter creating "trap sites" in which the continuity of the permeable horizons is suddenly broken by an offset in the geological unit/s. This "pod"-like characteristic of the mineralisation is seen within the Project area, where the highest-grade material is found concentrated within the lower zones of the Honeymoon deposit within the existing wellfield area. Figure 1 illustrates this by showing the updated Mineral Resource (hatched coloured areas) overlain by the previous 2016 Mineral Resource (light coloured lines).

A comprehensive three-dimensional wireframe model of the uranium mineralisation at Honeymoon was produced by Boss and passed on to independent resource consultants, AMC Consultants, for review and use in the resource estimation process.

Estimation Methodology: An updated Mineral Resource for the Honeymoon Uranium Project incorporating the Honeymoon Re-Start Area (Brooks Dam, Honeymoon and East Kalkaroo domains) has been generated by AMC as at January 2019.

The estimations used the interpreted mineralised zones as hard-boundaries in all cases.

Boss Resources validated PFN data against chemical assays from a relatively small number of core holes and sonic holes, concluding that the PFN data is comparable. Local disequilibrium factors for the gamma data were modelled for the mineralised zones using a large data set of 10,511 0.25 metre intervals containing pairs of gamma data grades and PFN data grades. The data pairs were modelled using an inverse distance interpolation method and power of 1 (ID1) into 20mE by 20mN panels for each of the individual mineralised zones, with a panel disequilibrium factor calculated from the estimated values (DISEQFAC=pU_3O_8/eU_3O_8). The local estimated disequilibrium factors (DISEQFAC) were assigned to any 0.25 metre intervals for the mineralised zone data sets occurring within the panel area and applied to the gamma data (eU_3O_8). The factors tended to be low (negative) or neutral for portions of the Lower Eyre Formation hosted mineralised zones and were increasingly high (positive) for portions of the Middle and Upper Eyre Formation hosted mineralised zones. Data is prioritized such that preference is given to any PFN data and then factored eU_3O_8 data where no PFN data exists for the interval.

Statistics for high grade cuts were generated for individual mineralised zones and subsequent regroupings of Lower, Middle, and Upper Eyre zones. Light high-grade cuts were applied to the prioritized data on the original 0.25 metre intervals. Cuts ranged from 4,000 ppm U_3O_8 for a relatively low-grade mineralised zone to 30,000 ppm U_3O_8 for a relatively high-grade mineralised zone.

The accumulation estimation process utilized full zone width composites based on the high grade cut 0.25 metre interval data resulting in composites having variable length or thickness.

Two dimensional directional experimental variograms were generated for the accumulation variable according to individual and grouped mineralised zones within the Lower, Middle and Upper Eyre Formation. The experimental variograms were generally well structured with moderate to high nugget

variance ranging from 35% to 75% and major axis ranges from 130 to 350 metres dependent on data quantity and consistency within the mineralised zones.

Given relatively thin mineralised zones, variable grades within the zones and mining by in situ leach ("ISL") methods, U_3O_8 grade estimation was completed using a Restricted Ordinary Kriging ("ROK") accumulation process. Dynamic anisotropy was used during estimation to accommodate the variable and complex orientations of the palaeovalley and palaeochannels at the different stratigraphic levels. The accumulation process involved estimation of an accumulation variable (U_3O_8 grade multiplied by thickness in centimetres) and the thickness variable (in centimetres) via ROK using full zone width composites and a restricted search neighbourhood. Variogram model and search parameters were kept identical for both the accumulation variables and the thickness service variables. Estimation was into selective mining unit (SMU) sized panels with dimensions of 5mE by 5mN by modelled thickness in RL and using a limited search neighbourhood. The estimated U_3O_8 grade was back-calculated from the estimated accumulation and thickness variables. The 5mE by 5mN SMU panel dimension considers the typical production borefield drillhole spacing approaching 20m by 20m and stated vertical selectivity within production bores at the scale of the interpreted mineralised zones.

Sample search parameters were defined based on the estimation method, variography and the data spacing. A two-pass search strategy with hard boundaries was used for all zones.

Mining by In-situ Recovery ("ISR") has been conducted in parts of the Honeymoon domain. Recovery of metal was tracked for well fields and a factor included in the model to adjust for metal removed from targeted mineralised zones.

The 2019 Honeymoon Mineral Resource upgrade varies from the previous Mineral Resource due to:

- Additional drilling throughout the project area including additional PFN data in key areas.
- Introduction of interpreted mineralisation zones to better honour local geology, palaeovalley and palaeochannel profile, tenor of mineralisation, and disequilibrium characteristics.
- Disequilibrium modelling has improved parity between the eU_3O_8 gamma data and the pU_3O_8 PFN data, honouring local variations and trends.
- Improved resource classification through additional drilling, PFN data in key areas, localized correction of the gamma data and classification according to confidence issues related to individual mineralised zones.

Resource Classification: The Mineral Resource for the Honeymoon Uranium Project has been classified as a combination of Measured, Indicated and Inferred material in accordance with JORC Code 2012 guidelines based on the confidence levels of the key criteria considered during the resource estimation such as confidence in the geology, interpretations, data quality, data types, drilling density, apparent grade and spatial continuity of the mineralisation, estimation quality, historical production and production test-work.

Figure 4 provides a distribution map of the total metal content (in units of kgs of U_3O_8) throughout the Honeymoon Resource Area.

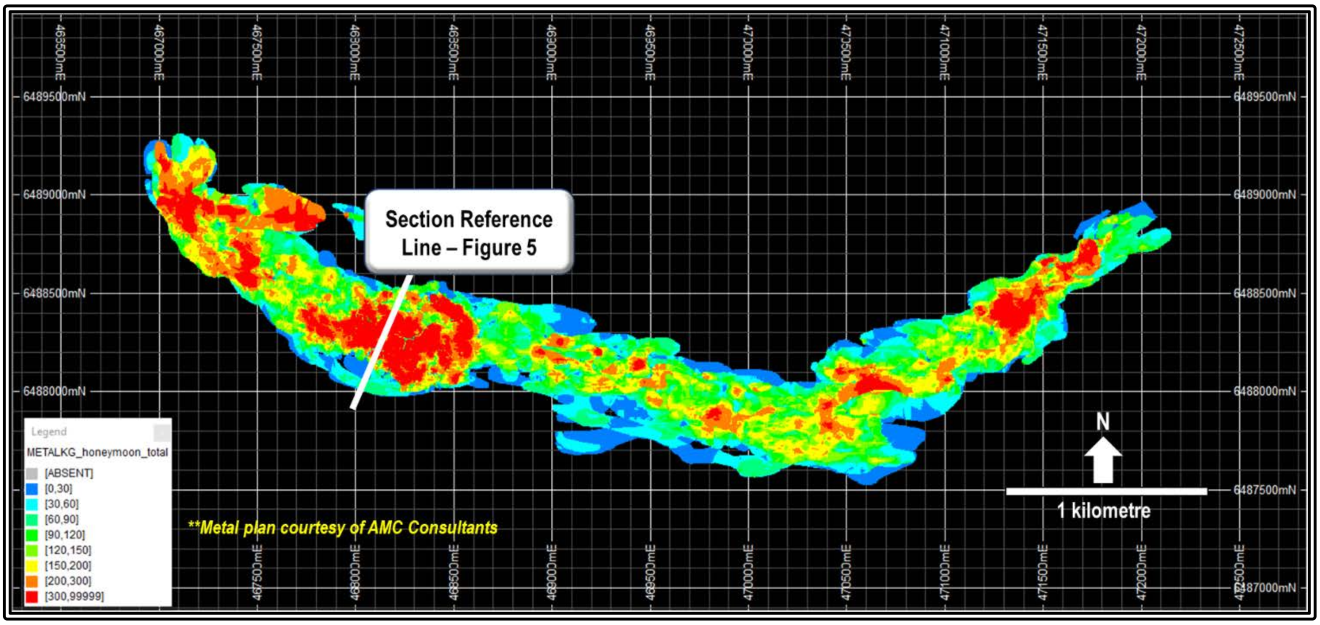

Figure 4: Honeymoon Resource Area Total Metal Content (kgs U_3O_8)

Figure 5 is a cross sectional view taken through the heart of the Honeymoon domain (the position of this section is represented by the thick white line in Figure 4). It can be seen from both images that the greatest mass of uranium metal, according to the 2019 Mineral Resource estimation, is currently focused within the Honeymoon Re-Start Area encompassed by ML 6109.

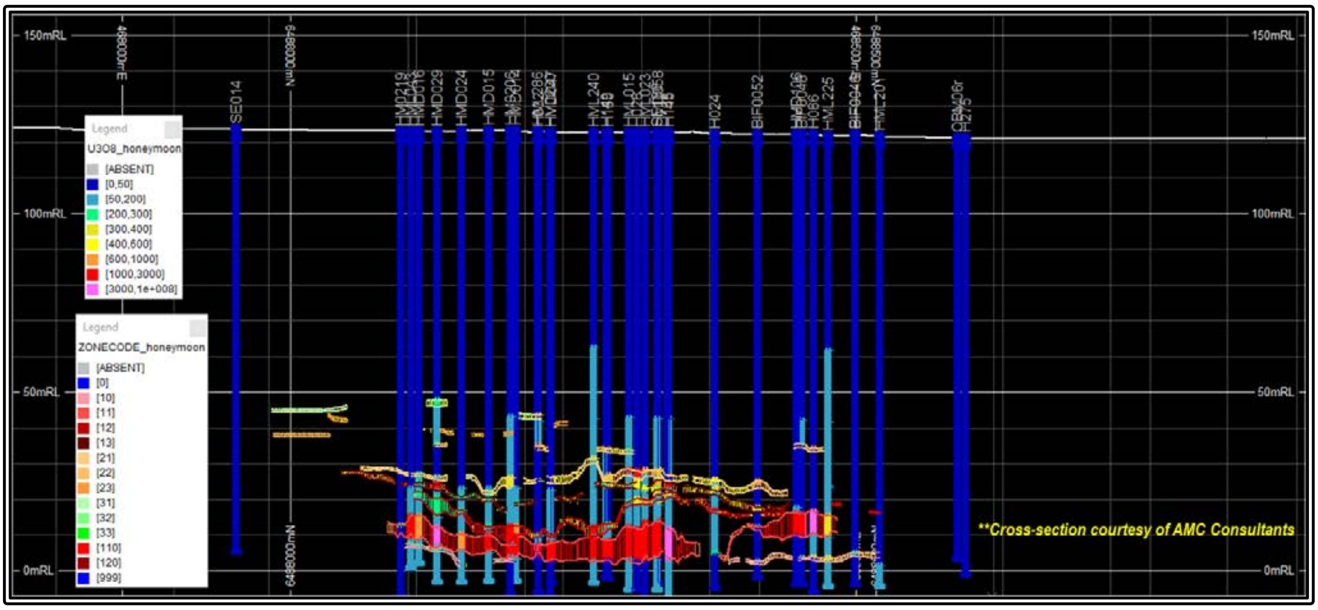

Figure 5: Honeymoon Domain – distribution of mineralisation through the Eyre Formation (4 x vertical exaggeration)

Bulk Density: Historical resource estimates at Honeymoon have been completed using a Dry Bulk Density value of 1.90 t/m^3 based on limited data This value was used in the previous Mineral Resource (JORC 2012) estimates completed by Boss Resources since the acquisition of the Project in 2015 (refer to ASX announcements released on 1 September 2015, 20 January 2016, and 15 March 2017). The current Mineral Resource (JORC 2012) upgrade continues to use the dry bulk density value of 1.90 t/m^3 noting that this value is to be confirmed from further core samples collected from the sonic core program completed on the Mining Licence at the end of 2018.

Cut-off grade: The lower cut-off grade for the Honeymoon Re-Start Area (Brooks Dam, Honeymoon, East Kalkaroo) has varied throughout the life of the project. The lower detection limit of PFN tools used for assaying should be considered when determining the appropriate cut-off grade. The downhole PFN tool has a lower detection limit of 200 ppm U_3O_8, and grades falling within the 200 – 250 ppm U_3O_8 bracket may be considered with a little less confidence than those higher than 250 ppm U_3O_8. Consequently, the application of a 250 ppm U_3O_8 lower cut-off value is appropriate and realistic for the Honeymoon Re-Start Area at this present time.

Sonic Core Holes

Nine sonic core holes were drilled after the conclusion of the 2018 infill program. The holes were designed to twin selected rotary mud drilling across the deposit from Brooks Dam to East Kalkaroo. The primary purpose of the sonic drilling was to obtain geochemical samples for verification of the uranium grades derived from the downhole PFN logging and not for any inclusion in the Mineral Resource (JORC 2012) estimation. The secondary objective of the program was to provide metallurgical samples from selected intervals in the ore zone for various metallurgical test work undertaken by the Australian Nuclear Science and Technology Organisation (ANSTO), New South Wales.

Results from the sonic drilling successfully confirmed the tenor of the uranium grades derived from the PFN data and provided further confirmation that the bulk of the mineralisation is hosted within the sandy units of the Lower to Middle Eyre Formation. The Eyre Formation consists of a series of upward fining sequences of coarse to fine sands, and interbedded silts and clays. Observations from both 2018 drill campaigns revealed that the units historically interpreted as silts were actually compacted sands. This was confirmed by much of the Borehole Magnetic Resonance ("BMR") logging data that showed greater porosity in parts of the Eyre Formation historically interpreted as being silt horizons and, therefore, suggesting that these horizons may actually be more readily leachable than originally thought.

Further Exploration Activities

In December 2018, a short orientation survey of ground-based gravity was conducted over selected parts of the East Kalkaroo, Brooks Dam and Jason's Deposits. These orientation surveys were designed on grids of an initial 50m station spacing and line spacing of 100m. This was later extended to a station

spacing of 100m and a line spacing of 200m. The latter was deemed to still provide excellent resolution of the palaeovalley and will likely be the design for future ground-based gravity surveys in the area.

The Company's geology team is currently finalising the 2019 exploration strategy and assessing additional cost efficient and effective geophysical alternatives to reduce the risk inherent in drilling under-explored areas.

As stated in previous ASX announcements[5] the global Honeymoon Uranium Project currently has a combined Exploration Target of between 32Mt to 78Mt at a grade of 450 ppm to 1,400 ppm eU_3O_8 (potential metal endowment of between 42 Mlbs and 100 Mlbs of contained uranium). This Exploration Target is purely conceptual in nature and there is currently insufficient exploration data to enable a Mineral Resource estimation. The Exploration Target requires updating and will be reviewed as part of the later announcement on exploration activity at Honeymoon.

The Company confirms that it is not aware of any new information or data that has changed or modified the Exploration Target in any way from the original market announcement.

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[5] Refer ASX announcements dated 8 April 2016 and 15 March 2017

Competent Persons Statements

The information in this announcement for the Gould's Dam and Jason's Deposit Mineral Resources is extracted from the reports released previously to market as entitled:

- ***SUBSTANTIAL INCREASE AND UPGRADE IN HONEYMOON URANIUM RESOURCE** [regarding the previous upgrade in Mineral Resource at Honeymoon], released on 20 January 2016 and available to view at: https://bossresources.com.au/wp-content/uploads/2016/02/160120-1-Honeymoon-resource-update-FINAL-4.pdf*
- ***BOSS INCREASES HONEYMOON URANIUM PROJECT RESOURCE BY 90% TO 53Mlbs U3O8** [regarding the most recent Mineral Resource estimate at Gould's Dam], released on 8 April 2016 and available to view on https://bossresources.com.au/wp-content/uploads/2016/04/160408-1-Goulds-Dam-Resources-Final-5.pdf*
- ***SUBSTANTIAL RESOURCE UPDATE FOR JASONS DEPOSIT** [regarding the most recent Mineral Resource at Jason's], released on 15 March 2017 and available to view on: https://bossresources.com.au/wp-content/uploads/2017/03/170315-1-Jasons-Resource-Upgrade-1-7.pdf*

Boss Resources Ltd confirms that it is unaware of any new information or data that materially affects the information contained within the original market annoucements and, in the case of estimates of Mineral Resources, that all material assumptions and technical parameters underpinning the estimates in the relevant market annoucement continue to apply and have not materially changed. Boss Resources Ltd confirms that the form and context in which the Competent Person's findings are presented have not been materially modifed from the original market annoucement.

The information in this announcement that relates to the Honeymoon Project Mineral Resource estimate (uranium) is based on and fairly represents information compiled and generated by Ingvar Kirchner, an employee of AMC Consultants. Mr Kirchner consents to the inclusion, form and context of the relevant information herein as derived from the AMC Consultants resource reports. Mr Kirchner has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which is being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the JORC 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'.

The information in this document that relates to the Honeymoon Project and associated Exploration Data is based on and fairly represents information provided by Ms Asha Rao, who is a Member of both the AusIMM and the Australasian Institute of Geoscientists (AIG). Ms Rao has sufficient experience that is relevant to the style of mineralisation, 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". Ms Rao has over 14 years of experience and is a full-time employee as Geology Manager for Boss Resources Ltd. Ms Rao consents to the inclusion in this report of the matters based on this information in the form and context in which they appear.

The information in this announcement for the Honeymoon Project Exploration Target is extracted from the report released previously to market, as entitled:

- ***HONEYMOON PROJECT EXPLORATION UPDATE** [regarding the most recent update in Exploration Target for the Honeymoon Uranium Project, which includes the Gould's Dam and Jason's areas], released on 8 December 2015 and available to view at: https://www.asx.com.au/asxpdf/20151208/pdf/433n8lh6b3shyv.pdf*

Boss Resources Ltd confirms that it is unaware of any new information or data that materially affects the information contained within the original market annoucement and, in the case of estimations of Exploration Targets, that all material assumptions and technical parameters underpinning the estimate in the relevant market annoucement continue to apply and have not materially changed. Boss Resources Ltd confirms that the form and context in which the Competent Person's findings are presented have not been materially modifed from the original market annoucement.

APPENDIX 1 – DRILLING DATA FOR SONIC CORE PROGRAM 2018

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

Hole ID	East	North	RL	Dip (°)	Azimuth (°)	EOH (m)	From (m)	Width (m)	peU_3O_8 ppm	pU_3O_8 ppm
BSC007	468499	6488398	122	-90	0	121.40	103.25	10.50	2833	10071
BSC007							115.25	1.75	102	324
BSC008	468560	6488281	122	-90	0	120.00	91.75	0.75	228	259
BSC008							96.00	2.00	209	280
BSC008							103.00	2.75	846	1072
BSC008							109.25	1.75	456	370
BSC008							112.00	0.75	337	292
BSC009	468421	6488105	122	-90	0	120.00	89.75	0.50	301	250
BSC009							111.50	1.75	1437	545
BSC010	467443	6488862	121	-90	0	122.20	87.50	3.25	440	750
BSC010							116.25	3.00	58	388
BSC011	467219	6488783	121	-90	0	122.50	80.25	1.75	238	365
BSC011							85.25	1.50	219	265
BSC011							88.50	1.75	214	271
BSC012	469990	6487840	125	-90	0	120.00	91.50	1.50	202	281
BSC012							103.00	2.25	672	595
BSC012							108.25	1.75	427	380
BSC013	470464	6487788	124	-90	0	120.00	91.25	0.50	228	259
BSC013							94.75	2.00	396	500
BSC013							97.75	0.50	287	257
BSC013							99.75	1.50	192	258
BSC013							102.00	2.00	401	371
BSC013							105.25	2.00	306	362
BSC013							109.50	1.50	447	273
BSC014	471088	6488318	122	-90	0	116.00	79.25	2.25	369	531
BSC014							81.50	3.00	393	483
BSC015	471341	6488506	120	-90	0	120.50	98.50	0.50	607	265
BSC015							100.75	0.50	360	273
BSC015							107.75	2.50	595	844
BSC015							115.50	1.50	336	332

Table Footnotes: *Summarised above a nominal lower cut-off grade of 250 ppm U_3O_8, minimum interval thickness of 0.5m and maximum internal dilution of 1m. "peU_3O_8" grade data is derived from the gamma tool stacked onto the Boss-owned PFN tool, calibrated and operated by Boss Resources Ltd. No top cuts applied. "pU_3O_8" grade data is derived from the PFN tools which are calibrated to groundwater and sedimentary conditions at the Honeymoon Mine Site.*

APPENDIX 2 – JORC TABLE 1, SECTIONS 1 – 3

JORC Table 1: Section 1 Sampling Techniques and Data

Criteria of JORC Code 2012	Reference to the Current Report Comments / Findings
Sampling techniques	The sampling method for drilling conducted at the Honeymoon Uranium Project has been by downhole geophysical logging. Drilling completed prior to 2003 was logged with downhole gamma tools. In 2003, due to the highly variable radioactive disequilibrium within the Honeymoon Deposit, three PFN (Prompt Fission Neutron) logging tools were purchased by Southern Cross Resources. The PFN tool emits and receives neutrons that interact directly with uranium (^{235}U) in the formation, thus providing a more direct in-situ measurement of the uranium and reducing the effect of the disequilibrium. A series of calibration test pits were constructed at the Honeymoon Uranium Mine to enable regular calibration of the company-owned PFN tools. All drilling undertaken after 2003 was sampled by a combination of downhole gamma and PFN logging. The gamma sondes were calibrated regularly at the certified Adelaide Test Facility on Conyngham Street, Glenside, Adelaide (formerly known as the AMDEL calibration pits). Calibration of the PFN tool was regularly undertaken using in-house calibration pits available at the Honeymoon. Sampling methods for the infill drilling completed in 2018 involved downhole geophysical logging undertaken by both Boss Resources (PFN) and an independent contractor (Wireline Services Group, Perth, W.A), the latter utilising a suite of gamma, Borehole Magnetic Resonance (BMR), self-potential (SP) conductivity, resistivity/induction, caliper and magnetic deviation. Gamma data was collected at variable sample rates between 5 and 10cm. PFN logging data was collected at sample rates between 1 and 3cm. Standard industry procedures were used for geophysical logging of the drill holes, and estimation from the geophysical logs for the eU_3O_8 (from the gamma-ray logs) and pU_3O_8 (from the PFN instruments) grades. Uranium grades (pU_3O_8) were calculated from the Boss-owned PFN tools after calibration and compositing to 25cm sample intervals. In-hole radiometric uranium grade data was also determined by Wireline Services. Equivalent gamma grades (eU_3O_8) were determined from the gamma data collected by both Boss and Wireline Services using the post-calibration natural gamma-logs, moisture correction, hole-size correction and preliminary disequilibrium correction factors, and were also composited to 25cm sample intervals. Work on disequilibrium factors will continue, however the disequilibrium factors currently in use are considered to be appropriate and satisfactory using the existing datasets available. Representative physical samples were collected from a sonic core drilling program undertaken after the 2018 infill drilling was completed. These samples were collected for the purpose of metallurgical testwork and to provide grade verification of downhole geophysical data. These are for verification purposes only and have not been included in the current Mineral Resource estimate upgrade.
Drilling techniques	Drilling within the Honeymoon Deposit consists of various phases of rotary mud (RM), rotary mud with core tails, diamond drill core (DD), sonic core (S), rotary air blast (RAB) and rock bit (RK) drilling conducted between 1969 (historical) and 2018 (BOSS), for a total of 2,632 holes for 321,462 metres (m). All holes were drilled vertically. The breakdown of the various programs is as follows: • *Historical (pre-2015, before Boss acquired the Honeymoon Project):* comprises a total of 2,418 holes for 295,049m. Holes were drilled at a variety of hole diameters dependent on the style of

	drilling employed, ranging between 47mm (NQ diamond core) to 300mm (water bore, drilled using the rotary mud method).
	• *Recent (post-2015):* Since acquisition of the Honeymoon Project in 2015, only 2 major drill campaigns have been undertaken:
	  • *2017:* Field leach trials were conducted on Mining Licence ML 6109 which included 11 water bores (rotary mud method) for 1,373m, with a hole diameter of between 140mm and 225mm. In addition, sonic core drilling was also undertaken for a total of 4 holes for 483m, with a diameter of 150mm.
	  • *2018:* The infill drilling program was completed using the rotary mud method for a total of 189 holes and 23,386m, with hole diameters ranging between 128mm and 140mm. A 91m water bore (rotary mud method, with a diameter of 225mm) was installed to monitor the host aquifers. In addition, sonic core drilling was also undertaken for a total of 9 holes for 1,080m, with a hole diameter of 150mm. The sonic core holes were drilled for metallurgical sampling and geochemical verification purposes only.

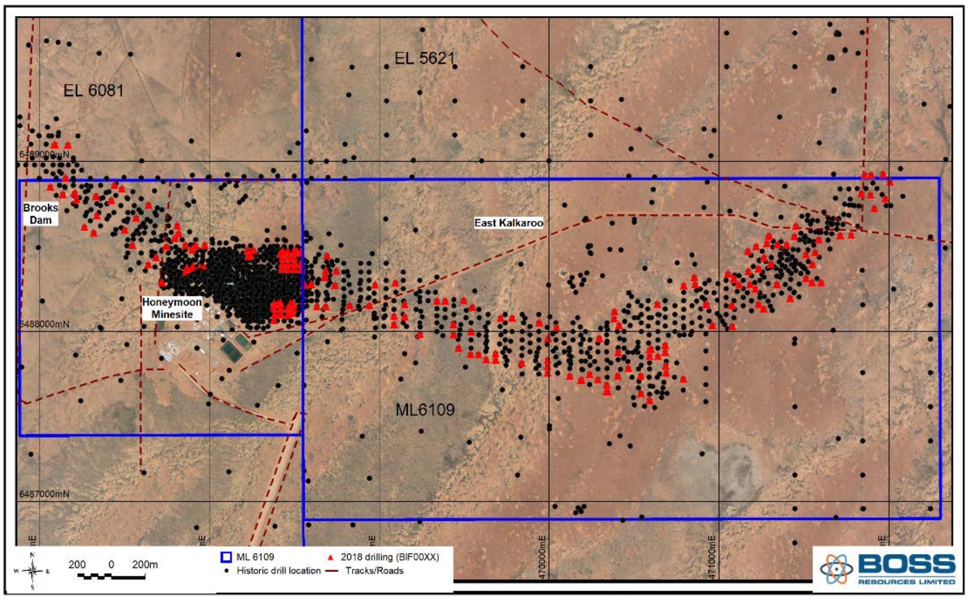
Drill sample recovery	The 2019 Mineral Resource estimate reported in this announcement was completed using only downhole geophysical logging. However, these data have been verified historically by diamond core geochemical assays and, more recently, by sonic core sampling. Physical samples have been collected intermittently between 1972 and 2017, predominantly from the core drillholes. Historical core recoveries have been variable. The 2017 and 2018 sonic core programs utilised hard plastic Lexan liners inside the rods (similar to the triple tubes used during diamond core drilling) to maximise core recovery. Thus, sample recovery yields were generally greater than 95% in 2017, and 97% in 2018.
Logging	The predominant sample type from all of the drilling at Honeymoon has been drill chips. The samples were extracted via shovels at the drill collar, laid out in 2m on the drill pad. Sieved chip samples were stored in corresponding in industry-standard percussion sample chip trays. Both the sample piles and chip trays were photographed. All mineralised intervals were geologically logged using typical industry standards. These include but are not limited to: colour, grain size, texture, sorting, alteration and oxidation state.
Sub-sampling techniques and sample preparation	Quality assurance and control (QAQC) of the geophysical data has included systematic control of the depth logged and control of the recorded U_3O_8 grade values. Geophysical tools estimate uranium content at large volumes, approximately 25 to 40cm radius. The volume is sufficiently large allowing accurate measure of the grade. QAQC methods of the physical samples collected from the 2017 and 2018 sonic core programs involved the use of duplicates and OREAS Certified Reference Materials (CRMs). CRMs were inserted at intervals of 1 in 20 (i.e. at every 20th sample. The CRMs included mineralised and unmineralized (blank) standards. The 2018 sonic core program involved halving coring and then quarter coring samples using an industry-standard, diamond-bladed core saw. Half of the cut core was then wrapped in shrink wrap plastic and vacuum sealed for future metallurgical and density testwork. One quarter of the core was taken for geochemical assaying, and the remaining quarter was retained for reference. Sampling was based on lithology and PFN uranium grades. The samples were submitted to the Bureau Veritas lab in Adelaide. The resulting assays themselves do not form part of the dataset involved in the final Mineral Resource estimate upgrade, however they were utilised in the verification of the PFN grades that do form part of that dataset.

Quality of assay data and laboratory tests	Boss-owned Geophysical tools used to collect data included: • Geovista Gamma (with Guard) S422 • Prompt Fission Neutron tool PFN#27 • Prompt Fission Neutron tool PFN#32 • Prompt Fission Neutron tool PFN#8 • Gamma combined with guard S058 • Geovista 3 arm calliper A326 Wireline Services Group used a tool suite comprising: Natural Gamma, Induction, SP Conductivity, Neutron Porosity, Resistivity, Magnetic Resonance, Magnetic Deviation and 3-arm Caliper. Downhole data was collected on both the downwards and upwards run of each tool stack in each drillhole, which provided a good control of logging consistency. All geophysical tools were regularly calibrated by specialist technicians. The Company-owned PFN tools were calibrated at least 2 – 3 times a month at the on-site Honeymoon calibration test pits. Each tool was run in a hole of known uranium grade for a specified period of time. After acquisition of the data, an average ratio would be calculated of epithermal neutrons emitted by the tool to the thermal neutrons produced by fission interaction with the uranium hosted by the formations. This average was then plotted onto a graph with the equivalent averages from the other pits. The resulting slope and offset of the resulting trend line would then provide the calibration factor for that particular tool. The frequent calibration runs also enabled a constant check on tool variance over the course of the drilling program. The various geophysical tools involved in the downhole logging were also calibrated at the Glenside facility in Adelaide. As for the PFN calibrations, each tool would be run for a particular set time and the resulting calibration factor determined graphically. QAQC of the geophysical data included systematic control of the depth logged and control of the recorded eU_3O_8 grade values. QAQC of the PFN data also involved the regular use of all 3 Boss-owned PFN tools on selected drillholes as a check of both logged depth and resulting pU_3O_8 uranium grades. Depth calibrations of the winches in both logging trucks were also regularly checked and tested.
Verification of sampling and assaying	The gamma-log data was validated and verified against the PFN log data, as the PFN tool provides a direct measurement of the uranium (^{235}U). PFN grade data was only reported where there was a good correlation between PFN and gamma anomalies; and where PFN tool readings were considered to be robust. Chemical assays are available from a limited number of diamond drill holes and a short sonic core program completed at the end of the 2018 infill drilling. This data was used to verify the uranium grades provided by the PFN tools. Resulting uranium grades from the sample assays generally confirm the grades and tenor of mineralisation shown by the PFN.
Location of data points	• Drillhole collar positions were set out, collected using a Garmin handheld GPS (GDA 94, MGA zone 54 with AHD elevation). All surveys were tied to the existing registered base stations. • Topographic control was improved by Aerometrex Pty. Ltd flying 10cm pixel aerial photography which was rectified using registered survey points installed at site before plant construction began. Following the survey, all historical drill collar RL values were corrected using the updated topographic surface. The corrected collar RLs formed part of the dataset used in the 2019 Mineral Resource upgrade. • Following the 2018 infill drill program, a Trimble differential GPS (DGPS) unit was hired to survey in the drill collars to a greater accuracy than that provided by the handheld GPS units. The Trimble system comprised an R2 GNSS receiver, Bluetooth connection to a Trimble TSC3 controller using the Trimble RTX correction service, with 3cm horizontal accuracy and greater than 10cm vertical

	accuracy. The resulting data from the DGPS survey was found to match the coordinates surveyed by the handheld GPS unit.
Data spacing and distribution	Drill spacings have been variable throughout the different generations of drilling in the history of Honeymoon. On average, the drill spacing is approximately 80m x 200m. The infill drilling undertaken in 2018 reduced the spacing to approximately 40-50m x 20-40m. Uranium grade data was composited to 25cm intervals to aid in the geological interpretation and assignment of mineralisation to the respective zones.
Orientation of data in relation to geological structure	All holes are drilled vertically which provides a suitable intersection of the flat laying mineralised bodies.
Sample security	All downhole geophysical data was collected by the appropriate contractors (e.g. Wireline Services), processed and validated at site and back at the head office of said contractor company, then sent to the Boss management team for uploading to the central database. Validation and QAQC checks were completed by Boss personnel. Boss is confident that all resulting data used in the Mineral Resource are secure, clean and of high standard. Sample security procedures for the safe transport and handling of radioactive samples involved: • Each chosen sample was put into a pre-numbered calico bag, with the sample information written onto the page of the corresponding number in the associated sample ticket book; • 5 calico bags were grouped into a larger white polyweave bag and a cable tie used to securely shut the polyweave; • Sample numbers, company and project name were written onto each polyweave; • Individual polyweaves were packed up into Intermediate Bulk Container (IBC) units; • A Ludlum Model 2401-P survey meter was then used to measure the surface concentration of alpha/gamma particles to ensure that the dose rate on the surface of each IBC was less than 5 µSv/hr, as specified by the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) Code for Safe Transport of Radioactive Material (2014); • Sample consignment information labels were displayed on each side of each IBC unit, showing the details of both sender (Boss Resources) and recipient (Bureau Veritas, Adelaide). Samples were dispatched via Attard's Transport, Broken Hill, and accompanying documentation given to the designated driver consisted of an appropriately-filled Dangerous Goods form and Sample Transport Documentation letter stating the purpose of the samples, and contact information in the unlikely event of an incident; • Additional labels for each IBC unit comprised stickers with the international code for "*UN2910 – Excepted Package*" which is relevant for all sample packages below 5 µSv/hr.
Audits or reviews	The information used in the previous Mineral Resource estimate (announced to the ASX on 20 January 2016) was reviewed, reinterpreted and incorporated into the current Mineral Resource estimate upgrade by both of the Boss Resources Competent Persons. Data collection and sampling techniques are confirmed to be of a high standard and no further reviews are required at this stage. An independent review of current drilling and data collection was conducted by AMC Consultants in September 2018 during drilling.

JORC Table 1: Section 2 Reporting of Exploration Results

Criteria of JORC Code 2012	Reference to the Current Report Comments / Findings
Mineral tenement and land tenure status	The Project consists of 1 granted Mining Lease, 5 granted Exploration Licenses, 3 Retention Leases and 2 Miscellaneous Purpose Licenses. The Mining license expires in 2023, exploration licenses expire in 2020 with the exception of EL 6020 and EL 6081 (expiry in 2019). All tenements are in good standing and are wholly owned by Boss Resources Ltd. A Native Title Agreement is currently in place with the Adnyamathanha, Ngadjuri and Wilyakali Traditional Owners. The Eastern Area of the Agreement provides 100% coverage over all tenements in the project area.
Exploration done by other parties	The Honeymoon deposit and surrounding areas of the Yarramba palaeochannel have been intensely explored and systematically drilled by different companies since 1969. The Honeymoon Project has been evaluated several times to varying degrees of intensity, from scoping studies to the current Definitive Feasibility Study that was initiated in 2018. Mineral Resource estimates have been conducted at various times between 1998 to 2016 (last Mineral Resource estimate was announced to the ASX on 20 January 2016).
Geology	Mineralisation at Honeymoon is in the form of tabular lenses in a palaeovalley-type, sandstone-hosted deposit. The two main mineralised systems identified thus far are the Yarramba and Billeroo palaeovalleys which are both filled with Palaeogene-aged, fining up sequences of sand, interbedded silts and clays. The valley systems were incised into the surrounding country bedrock of the Willyama Supergroup, and drain into Lake Frome to the northwest of the Project area. The palaeovalleys are situated approx. 70m below ground level, to a maximum depth of approx. 130m. Mineralisation characteristics are slightly different throughout Honeymoon, with the uranium ore situated deeper at Honeymoon (approx. 100 – 120m) and shallower at Brooks Dam and East Kalkaroo (approx. 80 – 110m). This led to the decision to separate the deposit into 3 domains: Brooks Dam, Honeymoon and East Kalkaroo for easier reference and classification. The majority of the mineralisation is hosted in the Eyre Formation, with the tabular lenses distributed between the Lower, Middle and Upper parts of the Formation. A minor amount of mineralisation is hosted within the weathered saprolitic zone at the top of the basement bedrock. This is unsurprising given that weathering and erosion processes would have destroyed the integrity of the basement bedrock, increasing the porosity and permeability of the saprolite zone and allowing uraniferous groundwaters to flow through the top of the basement. The inherent sulphides present within the basement lithologies would have allowed the reduction and subsequent precipitation of the uranium from the oxidised aquifer water, thus explaining the existing mineralisation there. Mineralisation is influenced by complex oxidation fronts vertically, laterally across strike, and laterally along strike, mobilizing both uranium and decay products variably throughout the channel.
Drill hole Information	The topography in the region of the Honeymoon Project is predominantly flat. All holes were drilled vertically with an average hole depth of approximately 120m. Drillhole collar locations are displayed as follows, with red triangles representing the infill drilling completed in 2018, and black dots representing

	all other historical drilling. Additional images and relevant cross-sections have been included in the body of this report. 
Data aggregation methods	Mineralised intervals were chosen based upon a nominal 250ppm U_3O_8 cut-off, minimum 0.5m interval thickness, and a maximum internal dilution of 1m. Consideration was given to mineralisation defined by a combination of PFN-derived (pU_3O_8) uranium grades and natural gamma (eU_3O_8) data.
Relationship between mineralisation widths and intercept lengths	The strike of the deposit is approximately east-west and mineralisation is flat-lying. Accordingly, all drill traverses are oriented at right angles across the domain, to maximise interception of the orebody. Given the flat nature of the mineralisation, all holes are of vertical inclination. Magnetic deviation surveys collected during the downhole logging procedure has revealed only minimal deviation (<2m over 100m) within all of the holes.
Diagrams	All of the appropriate and relevant diagrams have been included in the announcement.
Balanced reporting	**Appendix 1** lists the drillhole collar locations and mineralised intercepts from the 2018 sonic core program, using the nominal 250ppm U_3O_8 cut-off value, a minimum interval thickness of 0.5m and maximum internal dilution of 1m. All other drilling used in the Mineral Resource estimate have previously been released to market and have not been included in this report due to the size of the database (more than 7,000 records, which would be approximately 96 pages-worth of data).
Other substantive exploration data	Minor gravity surveys have been completed over parts of the resource area however these surveys have not been instrumental in the 2019 upgrade of the Mineral Resource and are deemed irrelevant for the purpose of this report.
Further work	The 2018 drilling program revealed that mineralisation remains open in all directions and requires further exploration to identify areas of potential extension. The next stage of work involves exploration of the

	areas immediately adjacent to Honeymoon with the eventual aim of adding tonnes and grade to the currently defined Mineral Resource. Future work may involve geophysical ground surveys (such as passive seismic), geochemical surveys and eventual drill-testing of anomalies identified from those surveys.

JORC Table 1: Section 3 Estimation and Reporting of Mineral Resources

Criteria of JORC Code 2012	**Reference to the Current Report**
	Comments / Findings
Database integrity	Data collected from the downhole geophysical logging completed for all recent drilling has been in digital format directly into industry standard LAS files stored on servers. All downhole logging data was loaded into a Microsoft Access database and a series of validation checks undertaken. No serious transcription errors were found. Queries were run on the dataset to check for missing intervals, abnormal values (high-low) and any logging speeds that were too high. Any suspect data was checked or removed if needed. During this process, it was discovered that 3 holes contained incorrect calibration factors – the grades of these holes were subsequently recalculated using the correct calibration parameters. Historical logging was collected onto paper via analog charts that were digitised during the late 1990's and catalogued in a library kept by Uranium One. The geological logs from the 2017 program were recorded onto paper forms, then entered directly into Excel, and later uploaded into the central Access Database on the Boss server in Perth. Geological logs from the 2018 programs were entered directly into a Microsoft Access Database. The Access logging database was designed and created specifically to improve the efficiency of the data validation process from previous programs.
Site visits	Asha Rao, Geology Manager of Boss Resources Ltd, worked on site during both 2018 drilling programs. Ingvar Kirchner, of AMC Consultants, visited site during the infill drilling campaign of 2018 as part of the technical review for the independent Mineral Resource estimation.
Geological interpretation	Palaeovalley-type, oxidation-controlled, uranium mineralisation is interpreted from the available data. The density of the drilling is sufficient for accurate interpretation and constraining the tabular lenses of uranium mineralisation. The geological setting for mineralisation within the Honeymoon Deposit has been reinterpreted based on a review of historical drilling and the 2018 infill drill campaign. The updated geological model consists of tabular-shaped, elongate lenses of uranium mineralisation within a palaeovalley-type, sandstone-hosted deposit. The uranium mineralisation is hosted primarily within the Eyre Formation – a Palaeogene-aged formation comprised of a series of fining-upward sequences of sands, gravels, interbedded silts and clays. The main mineralised system is hosted within the Yarramba Palaeochannel, which is a very broad (~1-2km wide) palaeovalley. High grade pods, or "shoots", are commonly observed as smaller in size and surrounded by haloes of lower

	grade mineralisation. Locally, uranium grades within the lenses or layers are noted to be highly variable. The interpretation of the mineralised zones involved construction of a set of wireframes based on the reinterpretation of all available geological data and assay data. The wireframes were created by constraining the DTM surfaces of the upper and lower contacts of each individual mineralisation lens using a nominal lower cut-off value of 150ppm eU_3O_8 (gamma data) or pU_3O_8 (PFN data). A minimum interval thickness of 0.5m was used as well as a maximum internal dilution of 1m. Twelve sub-horizontal mineralised zones have been defined. The mineralised zones are generally grouped and constrained within the Lower, Middle and Upper Eyre Formation incorporating 6 zones, 3 zones and 3 zones respectively. Within the Eyre formation subdivisions, the definition of the mineralised zones is not visually distinct, and is defined by changes in oxidation, gamma and PFN data, grade breaks between the layers, and occasional proximity to silty sand layers. Lateral variations in thickness, grade and geological continuity are noted within the mineralised zones along the complex palaeovalley and palaeochannels.
Dimensions	The Honeymoon Deposit is orientated broadly east-west with a current strike length of approx 6 km. Mineralisation still remains open, however, suggesting that there is potential for the strike of the deposit to exceed that figure. The strike of the interpreted palaeovalley in the area of Honeymoon exceeds 10 km. Strike length measured along the palaeochannel exceeds 6km. Width of mineralisation measured across strike is an average 300m, however it widens in the Honeymoon and East Kalkaroo areas reaching widths up to 600 - 700m. The current block model extents are: • 466800mE to 472300mE (5,500m length). • 6487400mN to 6489400mN (2000m width). • -30mRL to 170mRL (200m height) The block model is not rotated.
Estimation and modelling techniques	An updated Mineral Resource for the Honeymoon Uranium Project incorporating the Brooks Dam, Honeymoon and East Kalkaroo deposits has been generated as at January 2019. The estimations used the interpreted mineralised zones as hard-boundaries in all cases. Boss Resources Ltd validated PFN data against chemical assays from a relatively small number of core holes and sonic holes, concluding that the PFN data is comparable. Similarly, a large data set of 10,511 0.25 metre intervals from the mineralised zones containing pairs of gamma data (eU_3O_8 grades) and PFN data (pU_3O_8 grades) were studied for residual disequilibrium variability. This study noted the potential for variance within pairs related to depth matching and calibration of the different tools. The data was trimmed to eliminate pairs with PFN grades of less than 200 ppm pU_3O_8 considering the lower detection limit of the PFN tools. The data was also trimmed for pairs showing large relative differences for high eU_3O_8 data and low pU_3O_8 data which might generate significant over-corrections to the gamma data. The gamma tool measures gamma radiation from decay daughter products of uranium such as ^{214}Pb and ^{214}Bi whereas the PFN tool measures ^{235}U, a small relatively stable fraction of ^{238}U. While being indicative of mineralisation, it is possible for high eU_3O_8 values to occur in uranium-poor areas, for low eU_3O_8 values to occur in uranium-rich areas, or for the

	eU_3O_8 and pU_3O_8 to be relatively similar, depending on how the uranium and decay daughter products have been mobilized and reworked laterally through the palaeochannels and vertically through fluctuations in the water table. Regions of both positive and negative disequilibrium were noted along with trends both along the palaeochannels, across the palaeochannels and vertically through the mineralised zones. Further adjustment to the gamma data was required for the disequilibrium. The 0.25 metre data pairs of eU_3O_8 and pU_3O_8 were therefore modelled using an inverse distance interpolation method and power of 1 (ID1) into 20mE by 20mN panels for each of the individual mineralised zones, with a panel disequilibrium factor calculated from the estimated values (DISEQFAC=pU_3O_8/eU_3O_8). The block model confirmed the observed trends in the mineralised data pairs and incorporated adequate data (up to 64 0.25 metre interval pairs) to smooth erratic data pairs generated by issues such as depth matching, calibration of tools on individual holes, and natural short-scale variability. The local estimated disequilibrium factors (DISEQFAC) were assigned to any 0.25 metre intervals for the mineralised zone datasets occurring within the panel area. The factors tended to be low (negative) or neutral for portions of the lower mineralised zones and were increasingly high (positive) for portions of the upper mineralised zones. High factors were arbitrarily capped at a maximum of 3 to prevent over-correction of the eU_3O_8 data based on other regression analysis of the data. The capped disequilibrium factors were applied to all eU_3O_8 data with data prioritized such that preference is given to any PFN data and then factored eU_3O_8 data where no PFN data exists for the interval. Statistics for high grade cuts were generated for individual mineralised zones and subsequent regroupings of Lower, Middle, and Upper Eyre zones. Light high-grade cuts were applied to the combined PFN and factored gamma U_3O_8 data on the original 0.25 metre intervals. Cuts ranged from 4,000 ppm U_3O_8 for a relatively low grade mineralised zone to 30,000 ppm U_3O_8 for a relatively high grade mineralised zone. The accumulation estimation process utilized full zone width composites based on the high grade cut 0.25 metre interval data resulting in composites having variable length or thickness. Two dimensional directional experimental variograms were generated for the accumulation variable according to individual and geostatistically grouped mineralised zones within the Lower, Middle and Upper Eyre Formation. The experimental variograms were generally well structured with moderate to high nugget variance ranging from 35% to 75% and major axis ranges from 130 to 350 metres dependent on data quantity and consistency within the mineralised zones. Given relatively thin mineralised zones, variable grades within the zones and mining by in situ leach (ISL) methods, U_3O_8 grade estimation was completed using a Restricted Ordinary Kriging (ROK) accumulation process. Dynamic anisotropy was used during estimation to accomodate the variable and complex orientations of the palaeovalley and palaeochannels at the different stratigraphic levels. The accumulation process involved estimation of an accumulation variable (U_3O_8 grade multiplied by thickness in centimetres) and the thickness variable (in centimetres) via ordinary kriging (OK) using full zone width composites. Variogram model and search parameters were kept identical for both the accumulation variables and the thickness service variables. Estimation was into selective mining unit (SMU) sized panels with dimensions of 5mE by 5mN by modelled thickness in RL and using a limited search neighbourhood. The estimated U_3O_8 grade was back-calculated from the estimated accumulation and thickness variables. A check estimate using the grade variable andOK was generated. Sample search parameters were defined based on the estimation method, variography and the data spacing. A two-pass search strategy with hard boundaries was used for all zones. Block estimates were visually and statistically compared to the input composite samples.

	Mining by ISL has been conducted in parts of the Honeymoon domain. Recovery of metal was tracked for well fields, but no further drilling has been conducted within the well fields to verify the effectiveness of extraction. Therefore, reconciliation of the current model with past production remains uncertain. Produced metal has been depleted out of the specified well field areas in the model. No by-products are considered or modelled for the project. The 5mE by 5mN SMU panel dimension considers the typical production borefield drillhole spacing approaching 20m by 20m and stated vertical selectivity within production bores at the scale of the interpreted mineralised zones. Mining will be by ISL. Details are currently the subject of an updated Definitive Feasibility Study (DFS). The 2019 Honeymoon Mineral Resource has changed from the previous Mineral Resource primarily due to the following items: • Additional drilling throughout the project area including additional PFN data in key areas. • Introduction of interpreted mineralisation and stratigraphic zones to better honour local geology, palaeovalley and palaeochannel profile, tenor of mineralisation, and disequilibrium characteristics. • Disequilibrium modelling has improved parity between the eU_3O_8 gamma data and the pU_3O_8 PFN data, honouring local variations and trends. • Improved resource classification through additional drilling, PFN data in key areas, localized correction of the gamma data and classification according to confidence issues related to individual mineralised zones.
Moisture	Tonnages and metal are reported on a dry basis.
Cut-off parameters	The nominal 150ppm U_3O_8 lower cut-off used to interpret the mineralisation wireframe domains was chosen as it represents both a natural break in the data and limitation of the various tools used to generate the data. A block cut-off grade of 250ppm U_3O_8 is currently applied for reporting of the Mineral Resource as it assumes ISL as a mining method and some selectivity limited to extraction well field design and operation. Mining studies are currently in progress.
Mining factors or assumptions	Uranium mineralisation at the Honeymoon Project is amenable for exploitation using ISL technologies. Mineralisation is located within the aquifer where it is hosted by highly permeable coarse sands and silty sands. The estimated porosity of the Eyre Sands that host uranium mineralisation is approximately 30%. A moderate depth of mineralisation, and good spatial continuity coupled with the tabular shapes of the mineralised zones are favourable characteristics for exploitation using ISL technologies. This assumption was confirmed by numerous tests including the field leach tests which have confirmed the amenability of mineralisation to ISL extraction. Field Leach Trials were undertaken at Honeymoon in 2017 (see ASX announcements released 13 September, 4 October and 26 October 2017) showing that mineralisation is amenable for acid leaching and viable pregnant liquor values were obtained.

	The effectiveness of metal recovery from these leach trial areas relative to the current model is not well tested or reconciled. No mining recovery factor has been applied to the U_3O_8 in the Mineral Resource. A factor for metal depletion to-date from existing production well fields depletion is included as a field in the Mineral Resource model.
Metallurgical factors or assumptions	Metallurgical work is currently underway using core samples from the 2018 sonic drill program. The results of this testwork will form part of the DFS.
Environmental factors or assumptions	The Mining License includes all environmental, social and legal permissions allowing mining of uranium from the reported area using ISL technology.
Bulk density	A dry bulk density, 1.9 t/m^3 was used as a tonnage factor based on limited data. The bulk density is considered reasonable for the lithologies encountered in the Eyre Formation.
Classification	The Mineralised Resource for the Honeymoon Uranium Project has been classified as a combination of Measured, Indicated and Inferred material in accordance with JORC Code 2012 guidelines. Resource classification is based on the confidence levels of the key criteria considered during the resource estimation process such as confidence in the geology, interpretations, data quality, data types, drilling density, apparent grade and spatial continuity of the mineralisation, and historical production and testwork.
Audits or reviews	The current estimate has been internally reviewed by A. Rao of Boss Resources Ltd, an appropriately qualified person in the type and style of mineralisation under review. No external review of the Mineral Resource has been conducted.
Discussion of relative accuracy/ confidence	The resource classification represents the relative confidence in the resource estimate as determined by the Competent Person. Issues contributing to, or detracting from, that confidence are discussed above. No quantitative approach has been conducted to determine the relative accuracy of the resource estimate. The ROK accumulation method model is considered to reflect potential recovery on the typical well field and SMU scale of selectivity without having inappropriate internal vertical variability (or inferred selectivity) within the interpreted mineralised zones. The Mineral Resource model cannot anticipate well field design, continuity issues (either grade or geological) that might impact on the well field design, or variable recoveries related to the ISL mining process (including geochemical and/or permeability constraints). Accurate ISL scenarios are yet to be determined by an updated DFS including the extent to which marginal grade mineralised zones might be targeted and recovered. Limited historic production data is available and is generally positive. However, comparison with the current estimate is not yet well understood. Determination of actual recovery via ISL mining method is likely to remain uncertain.

	The local accuracy of the Mineral Resource model is considered fit-for-purpose for the expected use of the model in the DFS. Due to the nature of the uranium mineralisation, the degree of radiochemical disequilibrium is likely to vary laterally between drillholes and with depth down each drillhole. Disequilibrium factoring applied for the 2019 resource estimate is considered to have resulted in satisfactory global results but local variations are still expected particularly for areas requiring additional drilling and close-spaced PFN data. Quality of the PFN data also needs to be continually monitored for correct calibration of the tools. Additional drilling by Boss over the last few years has continued to improve confidence in the continuity and consistency of uranium mineralisation within the project area. Further infill drilling, investigation into bulk density determination, radioactive disequilibrium (both vertical and lateral), and on-going testing for reconciliation to understand potential recoveries from the ISL mining process will be required to raise the level of resource classification further.