September 2020 Quarterly Report

ASX Release 29 October 2020

For personal use only

Boss Resources Limited (ASX: BOE) (**Boss** or the **Company**) is pleased to provide its quarterly activities report for the three months ending 30 September 2020.

September Quarter Highlights

- **IX Breakthrough Study confirms NIMCIX IX system can replace Solvent Exchange infrastructure, to potentially increase Honeymoon's production profile and lower operating costs over LoM**
- **Further optimisation of IX process confirms significant cost reductions, with savings on reduced site power demand and transmission line upgrade costs, and potential reagent savings**
- **GR Engineering Services engaged to deliver Enhanced Feasibility Study in 1H 2021, integrating process optimisations on top of the outstanding economics detailed in the 2020 Feasibility Study**
- **Global resource executive Wyatt Buck appointed as Non-Executive Director**
- **Placement to raise $15 million at $0.067 per share with strong demand from existing and new domestic and international investors**
- **Funds raised to be applied to ongoing technical process optimisation studies and exploration activities at the fully permitted Honeymoon Project in South Australia**
- **Honeymoon is a fully permitted Uranium mine capable of re-starting production in 12 months and positioned to be one of the lowest cost Uranium producers globally**
- **Boss continues to engage with utilities for off-take and commercial discussions continue.**

Managing Director and CEO Duncan Craib commented, "*This past quarter has been truly transformational for Boss with our experienced team continuing to deliver value-adding technical and commercial advancements. The potential of the IX technological breakthrough to increase throughput and lower operating costs is a significant leap forward in the Honeymoon development.*

We greatly appreciate the vote of confidence shown by existing shareholders taking up allocations in a placement scaled back to $15 million, with new strong support from a range of Australian and global institutions getting behind Boss. The Company has no long-term debt and only incurs day-to-day working capital requirements.

Our full Board complement was also achieved with the appointment of Wyatt Buck, who possesses vast industry knowledge and experience in managing some of the most significant assets ever developed in the Uranium sector.

The Company eagerly anticipates the next significant milestone – delivery of the Enhanced Feasibility Study in 1H 2021. We are going to make every penny and every minute count, strengthening Honeymoon's potential to be one of the lowest cost Uranium producers globally and able to profitably seize upon an anticipated upswing in Uranium prices."

FOR FURTHER INFORMATION PLEASE CONTACT:

Boss Resources Limited
ABN 38 116 834 336

Suite 3, Churchill Court
234 Churchill Avenue
Subiaco WA 6008

Duncan Craib - Managing Director/ CEO
+61 (08) 6263 4494

Bryn Jones – Technical Director
+61 (08) 6263 4494

ASX: BOE

www.bossresources.com.au

@Boss_Resources

For personal use only

Following the highly successful Feasibility Study (FS) in January 2020, the Company has embarked on technical optimisation studies which included completing NIMCIX IX process detail design and testing, as announced on 25 September 2020 and cost saving results relating to reduced site power demand and transmission line upgrade costs, as announced on 20 August 2020. The savings and technical advancements identified have incentivised Boss to initiate an Enhanced Feasibility Study (EFS) to incorporate these significant enhancements.

Implementation of NIMCIX Technology

Boss's Restart and Expansion plans have been split into separate stages, of which Stage 1 and 2 are presented as the base case for the Honeymoon FS[1], showing that production can recommence within a 12-month period. Stage 1 development focused on the restart of the existing solvent extraction (SX) plant, which has a nameplate capacity of 0.88Mlb/annum U_3O_8 equivalent. Stage 2 is an expansion strategy that will increase production to 2Mlb/annum U_3O_8 equivalent and involves the construction of a new ion exchange (IX) circuit.

Additional work has now been completed by Boss, ANSTO and GR Engineering Services Limited (GRES) examining the potential to replace the existing SX columns on site with new NIMCIX columns. The results show that it is entirely possible to eliminate the SX plant envisaged Stage 1 and incorporate a NIMCIX system with the following stipulations:

- The flow rate through the new NIMCIX columns must be equivalent to or higher than the SX system;
- The lead time to commissioning should not be significantly impacted;
- The overall Project CAPEX intensity should not be impacted; and
- As much of the current SX structural and process infrastructure as possible to be re-used.

The conclusion of this review is that these criteria are achievable and highlighted the potential for lower unit operating cost and higher production rates over the Life of Mine (LoM).

Additional potential benefits of the conversion include:

- Significantly higher throughput through the plant during Stage 1 and beyond;
- Improved safety outcomes through the elimination of combustible solvents in process;
- Improved environmental outcomes through elimination of the potential for organic entrainment to the wellfield; and
- Simplification of the process through standardisation of Uranium extraction technology.

IX Process Optimisation

The IX process optimisation programme aimed to remove the requirement for solution heating in the elution of Uranium from the IX resin. Power input to the elution process necessitated upgrades to the transmission line to service Honeymoon with grid power from Broken Hill, located 80km south-east of the mine.

Boss devised a series of tests, in consultation with ANSTO, to study the effect of ambient temperature on both the conversion and elution performance.

[1] *Refer to ASX: BOE Announcement dated 21 January 2020. All material assumptions underpinning the forecast financial information (and the production targets on which such forecast financial information is based) as announcement on 21 January 2020 continue to apply and have not materially changed.*

For personal use only

The conversion work indicated that an ambient temperature process could easily achieve the required conversion performance within the timeframe in the process design. Furthermore, a 45% reduction in reagent concentration in the conversion process had a negligible effect on conversion performance and offered significant reagent savings.

Testwork on the elution process was also very successful. While there is a small difference in the eluant requirement to achieve complete elution of the resin, there is sufficient capacity in the elution circuit as designed to achieve this without impacting the downstream processes, while facilitating significant energy savings.

The remainder of the programme aimed to provide additional information to allow detailed equipment design for IX adsorption and elution processes. As a result of this work, Boss made additional changes to the resin sulphation and regeneration processes which could represent additional cost savings.

Enhanced Feasibility Study

The Company will now incorporate both the IX Process Optimisations and the pure NIMCIX adoption into an EFS level estimate for the Honeymoon Uranium Project restart to assess the economic impacts of these changes.

Boss is pleased to re-engage GRES as the engineering and lead study consultant for its EFS leveraging on the FS completed in January 2020.

Through the EFS Boss aspires to increase the ramp up production schedule and nameplate capacity of Honeymoon through the adoption of a wholly IX (NIMCIX) system with the first stage of production ramp up delivered within the original 12-month delivery timeline from an investment decision.

The Company expects associated savings to further assist the pursuit of financing and off-take discussions in order to make a decision to proceed to mine, assuming a specified global Uranium price has been achieved to satisfy the targeted IRR and NPV return so as to maximise shareholder value.

In parallel with the above activities Boss's exploration team is completing a comprehensive desktop review of the extensive historical exploration database information to define new Uranium exploration targets. With financial support from the South Australian government to utilise innovative Uranium geophysical exploration techniques, exploration is focussing on expansions to known Uranium discoveries to increase Honeymoon's production profile distal to existing JORC Mineral Resources[2], including ongoing review of existing Exploration Targets[3].

Full Board Complement – Appointment of Director Wyatt Buck

Having undertaken an international executive search to compliment the Board with additional project execution and operational skills in preparation for Honeymoon's restart, the Company announced the appointment of Mr Wyatt Buck as a Non-Executive to its Board of Directors, effective 1 October 2020.

Mr Buck's Uranium experience began with Cameco Corporation, where he was employed for 15 years between 1991-2006 in various roles, culminating as GM of the McArthur River Uranium Mine and Key Lake Mill, the largest Uranium mining operation in the world.

[2] *Refer to ASX: BOE announcement dated 25 February 2019*
[3] *Refer to ASX: BOE announcement dated 25 March 2019*

For personal use only

He then held senior operational roles with Paladin Energy Ltd (ASX: PDN) as General Manager and Managing Director of the Langer Heinrich Uranium Project in Namibia from the commencement of construction in February 2006 through to design level production. From September 2009 to May 2011, Mr Buck was Executive GM Operations at Paladin with direct operational responsibility for its Langer Heinrich and Kayelekera Uranium projects.

Since 2011, Mr Buck has acted as Operations Director with First Quantum Minerals (TSX: FM), overseeing mining operations in Finland, Spain, Turkey, Australia and Mauritania. He has been involved in the production of various commodities including gold, copper, nickel, zinc and PGMs, including the restart of Western Australia's Ravensthorpe nickel laterite mine in 2020. He resides in Perth, Western Australia.

$15 Million Placement

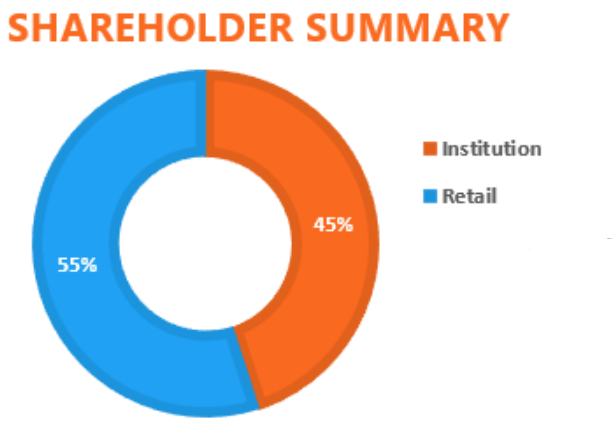
On 1 October 2020, the Company announced it had received firm commitments for a $15 million share placement through the issue of approximately 224 million new shares to institutional and sophisticated investors at a price of $0.067 per Placement Share.

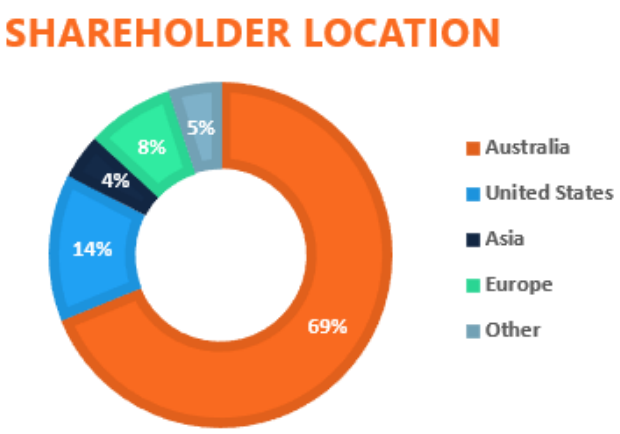
The Placement was strongly supported by existing and new domestic and international investors. In addition, Boss Directors participated in the Placement for an additional $225,455 (3,365,000 Placement Shares), subject to shareholder approval to be sought at Boss's forthcoming Annual General Meeting.

Share placement funds will be used to:

- Pursuing IX process optimization for incorporation into an Enhanced Feasibility Study
- Fund ongoing exploration activities meeting tenement commitments
- Recruit additional technical and mining experts as and when required
- Fund the acquisition of long lead items for a restart of mining at Honeymoon
- Assess and execute where appropriate, value accretive M&A opportunities
- General corporate and administration purposes.

Post the issuance of shares, Boss provides the following shareholder type and location summary:





The Company's Top 20 shareholders hold approximately 65% of the shares on issue, with three substantial shareholders holding the following interests:

Substantial Shareholder	%
Paradice Investment Management Pty Ltd	9.7
Tribeca Investment Partners Pty Ltd	8.5
Sachem Cove Partners LLC	6.1

Uranium Market Analysis

The Uranium market in 2020 has been strongly influenced by:

1. Policy and trade uncertainty in the United States which has shifted utility procurement activity from long term contracting towards spot and mid-term purchasing
2. The global Covid-19 pandemic which has impacted primary Uranium supply and reshaped how companies operate to keep staff safe and follow local health regulations.

Adopting a US centric view, the world's largest consumer circa 25 – 30% demand, utility fuel buyers have been reluctant to enter into long term off-take contracts in past years due to uncertainty with the US Administration's stance towards s232, nuclear fuel working group, Iranian Waivers and most recently the Russian Suspension Agreement. On 6 October 2020, the U.S. Department of Commerce and the State Atomic Energy Corporation Rosatom, on behalf of the Government of the Russian Federation, signed a final amendment to the Agreement Suspending the Antidumping Investigation on Uranium from the Russian Federation. The extension of the Russian Suspension Agreement until 2040 will allow utilities in the US to re-enter the market for longer term supply.

This amendment gives the industry clarity on how much Russian Uranium, conversion and enrichment will be allowed into the US and enables utilities to develop and implement longer term Uranium procurement strategies. Accordingly, these positive changes will have an important effect on Uranium procurement going forward including an expected increase in demand of global U_3O_8 consumption from non-Russian feedstock. Australia will undoubtedly benefit from the need to diversify sources of Uranium supply and Boss is ideally positioned to capitalise upon this.

The global pandemic continues to impact the market. Covid-19 has effectively shown that reliance on a concentrated number of jurisdictions and suppliers for the critical raw product is an unwise strategy. Geopolitical risk is prevalent in many regions responsible for traditional Uranium supply which advantages Australia and Boss are in the ambition to provide diversity of supply and lower risk. Supply lost during the production cutbacks due to the pandemic will not be recovered and this coupled with the shuttering of financially unviable mines has resulted in a reduction in global inventories and is bringing forward the need for mine restarts and new production.

In response to the COVID-19 pandemic, Kazatomprom reduced the number of employees at its mine sites between April and July, and expects to produce around 50 Mlbs U_3O_8 in 2020, down 16% from 2019. Kazatomprom also announced that it will continue to "flex down" production by 20% through 2021 to 2022, with no additional production planned to replace volumes lost due to the measures taken to combat COVID-19. Kazatomprom's total consolidated Uranium production is therefore expected to be reduced by over 52 Mlbs U_3O_8 (100% basis) from its previous 2020 through 2022 production plans.

Cameco also expects its 2020 production to be reduced, particularly from Cigar Lake by up to 4 Mlbs U_3O_8. Prior to the pandemic, the company planned to produce 9 Mlbs U_3O_8 in 2020.

For personal use only

Globally, demand for long term supply increased in Q3 and is expected to continue to do so in Q4. The drivers of the increase in this year's spot price existed long before the Covid-19 epidemic, and Boss continues to actively engage with fuel buyers and remains close to global utilities, so that Honeymoon can respond rapidly to price movements.

Annual General Meeting

The Annual General Meeting of the Company will be held at the offices of BDO Australia, at 38 Station Street, Subiaco, Western Australia on Wednesday, 18 November 2020 at 10.00 am (WST).

Appendix 5B Disclosures

In line with its obligations under ASX Listing Rule 5.3.5, Boss Resources Ltd notes that the only payments to related parties of the Company, as disclosed in the Appendix 5B (quarterly Cashflow Report) for the quarter ended 30 September 2020, relate to payments for executive directors' salary and superannuation and non-executive director fees.

During the quarter ended 30 September 2020, the Company spent approximately $606,000 on project and exploration activities relating to its Honeymoon Uranium Project. These activities included technical optimisation studies investigating the ability to replacing the existing SX infrastructure with the NIMCIX IX system and optimisation of the ion exchange process. In addition to these studies the Company continued to incur the ongoing care and maintenance activities required at the Honeymoon Uranium Project. The expenditure represents direct costs associated with these activities as well as capitalised wages which can be directly attributable to the Honeymoon Uranium Project.

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

For further information, contact:
Duncan Craib
Chief Executive Officer
P: +61 (8) 6263 4494
E: boss@bossresources.com.au

For personal use only

SCHEDULE OF MINING TENEMENTS

The following information is provided pursuant to Listing Rule 5.3.3 for the quarter ended 30 September 2020.

Tenement Name	Location	Licence Number	Interest
Yarramba	South Australia	EL6510	100%
South Eagle	South Australia	EL6081	100%
Gould's Dam	South Australia	EL6512	100%
Katchiwilleroo	South Australia	EL6511	100%
Ethiudna	South Australia	EL6020	100%
Gould's Dam	South Australia	RL83-85	100%
Honeymoon Mine	South Australia	ML6109	100%

There were no mining tenement acquisitions or divestments during the quarter.

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 proposed to be undertaken.

In relation to the Mineral Resource announced on 25 February 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 Resources, which could cause actual results to differ materially from such statements. Boss Resources 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.

For personal use only