

## 30 JUNE 2017 QUARTERLY REPORT

### HIGHLIGHTS

- Completion of a highly successful Preliminary Feasibility Study, confirming economic robustness of the Honeymoon Uranium Project
  - Low capital outlay optionality for near term production
  - Low All-in-Sustaining Costs of US\$23.90 / lb U<sub>3</sub>O<sub>8</sub> equivalent over Life of Mine
  - Low direct operating cost (at mine gate) of US\$15.60 / lb U<sub>3</sub>O<sub>8</sub> equivalent
  - Significant potential for economic upside with further resource expansion and life of mine extension
- Resin identified with over 100% higher loading capacity than previously tested resins, appropriate for Honeymoon type liquors with high chloride
- Ready for imminent commencement of a Field Leach Trial to validate leach and ion exchange processes
- Appointment of leading Strategic and Marketing Adviser, Ms Sashi Davies

Boss CEO, Mr Duncan Craib stated, “the successful implementation of a staged development approach continued during the June quarter as the Company prepares itself for operational readiness, with the imminent commencement of the Field Leach Trial to provide further technical validation. In parallel with this ongoing activity, Ms Sashi Davies has been appointed to strengthen and advance the Company’s marketing, pricing and sales strategy as we position Honeymoon to be Australia’s next uranium producer.”



Figure 1. The Honeymoon Uranium Project, with Field Leach Trial area identified.

## HONEYMOON URANIUM PROJECT

During the quarter, Boss Resources Limited (ASX: BOE) (“Boss” or the “Company”) was pleased to announce the completion of the Preliminary Feasibility Study (“PFS” or “Study”) on its Honeymoon Uranium Project (“Project”) in South Australia (ASX: 31 May 2017).

Following the successful Expansion Study (announced ASX on 28 September 2016) a PFS was initiated as the next step for continuation of the restart strategy for the Honeymoon Project, to define the well-field operation strategy and progressively increase the processing plant capacity. Specifically, the Study set out to:

- Confirm the preferred processing technology;
- Optimize the production profile;
- Investigate well field development scenarios;
- Validate process performance through metallurgical testwork (leaching and IX); and
- Determine a mineral resource that could be converted to an Ore Reserve.

### Preliminary Feasibility Study

KEY PROJECT FUNDAMENTALS	
Mining method	In-Situ Recovery (ISR)
Solvent Extraction (SX) re-start time	12 months duration
Ion Exchange (IX) construction time	24 months duration
Operating Costs (AISC) Life of Mine	US\$23.90 / lb U <sub>3</sub> O <sub>8</sub> equivalent
Mine life	7 years (with potential for further extension)
Payback Period	3.6 years
% Measured & Indicated Resources in Production Profile	68% (90% during payback period)
COST ANALYSIS	
Operating cost estimates (AISC)	US\$
Wellfield	\$0.90
Plant	\$13.10
General & Admin	\$1.65
Marketing, Shipping & Royalties	\$4.65
Sustaining Capex (including wellfield development)	\$3.60
<b>Total (US\$/lb U3O8)</b>	<b>\$23.90<sup>1</sup></b>
CAPITAL OUTLAY	
Breakdown of Capital Outlay	
Stage 1: SX re-start	US\$ 10M <sup>1</sup>
Stage 2: 2.0Mlbs/annum IX process	US\$ 58M <sup>1</sup>
Stage 3: 3.2Mlbs/annum IX increase	US\$78M <sup>1</sup>

\*Note: exchange rate of A\$1.00 = US\$0.75 was used

<sup>1</sup> Figures have been rounded

Boss has worked with GR Engineering Services Limited (“GRES”), the Australian Nuclear Science & Technology Organisation (“ANSTO”) and Groundwater Science to address the operational and plant performance issues which affected the previous owners.

As announced on 27 April 2017, preliminary test work results from the metallurgical testwork program undertaken with the ANSTO as part of the PFS on selected resins and organics for the proposed ion exchange and solvent extraction circuits were highlighted, along with leaching on core samples collected during the drilling program. The results from the testwork was used by GR Engineering Services for the PFS process design criteria on which the plant design, sizing and costing are based.

In addition, the PFS was designed to ensure all potential changes to the existing process and operational footprint are identified and assessed in relation to potential impact on safety, health and the environment.

### Staged Development Approach

The staged approach for development of the Honeymoon Project is based on restarting the operation with existing facilities (modified to achieve nameplate throughput) in conjunction with constructing the first stage of the ion exchange plant. After successfully ramping up and verifying the new process a further ion exchange upgrade is planned. Accordingly, the re-start of the Honeymoon project will be executed in the following main stages:

**Field Leach Trial:** A wellfield trial at ~1:10 scale of a full-scale wellfield will be carried out within the existing developed mine footprint at Honeymoon to demonstrate the improved leaching chemistry defined by the current laboratory testwork and produce real solutions for an ion exchange pilot plant.

**Stage 1:** Restart of the existing operation; which will involve the use of existing wellfields, and restarting the existing solvent extraction (SX) plant with minor modifications to rectify identified operational issues, during the period of construction of the ion exchange (IX) plant;

**Stage 2:** Ramp up of plant capacity to 2Mlb/annum  $U_3O_8$  equivalent using the combined SX / IX system;

**Stage 3:** Ramp up of plant capacity from 2Mlb/annum to ~3.2Mlb/annum  $U_3O_8$  equivalent (after validating the IX technology) through the addition of further IX columns.

Based on these strong results the Board resolved to move to the next stage of development, the Field Leach Trial, which will form part of the Definitive Feasibility Study.

### Field Leach Trial

On 19 June 2017, the Company announced it had completed the planning and design activities for the Field Leach Trial (“FLT”). The FLT forms an important part of the Definitive Feasibility Study (“DFS”) and includes, along with the leach trial, an ion exchange pilot plant, all on the Honeymoon Mining Licence.

Following the staged development approach, the Board has approved the commencement of the FLT to optimise the wellfield design and technically ensure a viable sustaining operation of the Honeymoon Project. Specifically, the FLT has been designed to provide data to address the following:

- Detailed understanding of the geological settings in which the wellfield is operated
- Correct borehole design and location of screens within the mineralised zone
- Correct understanding of “flaring” and the impact on recovery and dilution

- Obtaining the necessary pumping pressure in the injection lines to ensure as far as possible that the maximum amount of solution is in contact with the ore
- Controlling gypsum precipitation within the orebody and screens/pipes
- Understanding leach kinetics and their impact on historical recoveries and generally low-grade solutions produced

The FLT will be run in a previously designed, but not operated, wellfield from the Uranium One production plan. The trial will be ~1:10 scale of a normal production wellfield, and will use a similar a set-up but with a modified leach chemistry (pH & ORP levels). The pregnant leach solution (“PLS”) produced from the wellfields will be used to feed the ion-exchange (“IX”) pilot plant that will confirm the long-term performance of the selected resin over multiple load-elute cycles.

The IX pilot plant has been selected so as to provide confirmatory data for the processing assumptions made in the PFS and furthermore verify the stability and ongoing performance of the resin. Both the leach trial and the IX pilot plant will further confirm the potential to restart the Honeymoon Uranium Project and help ensure the Company’s capacity to be a first mover to development in a rising uranium price environment.

## POST QUARTER SIGNIFICANT EVENTS

### Burkina Faso Gold Assets

On 25 July 2017, Teranga Gold Corporation, the Company’s joint venture partner over its Burkina Faso Gold assets (ASX: TGZ) (TGZ: 51%; BOE 49%), announced results of its recent drilling at the Golden Hill Gold Project (see ASX: 25 July 2017 for full details). The announcement confirmed early-stage drilling continues to yield high-grade, near-surface oxide gold mineralization at its Golden Hill property in Burkina Faso, West Africa.

These most recent results comprise phase 2 drill results at Ma and Nahiri, two new discoveries reported by the Company in April, as well as initial drilling at two new targets, Peksou and Jackhammer Hill. All four prospects are proximally located within 5 kilometres of a central point. In addition, there remains 11 core holes from Ma and 63 reverse circulation drill holes for which results are pending; 20 at Ma, 20 at Nahiri and 23 from a variety of targets in the Pourey-Peksou area.

**David Mallo, Teranga’s Vice President, Exploration, stated** *“We are very excited with our discoveries and extension of mineralization at Golden Hill within the highly prospective Houndé belt. Our early stage drilling has yielded strong grades and widths displaying good continuity along trend and mineralization remains open along strike at all four of our priority prospects. We are expecting results from eleven core holes and over 60 RC holes shortly which should further enhance our resource footprint. With an aggressive drilling program in place through the remainder of the year, we are targeting an initial resource estimation for Golden Hill in the coming quarters.”*

The Golden Hill property is comprised of three adjacent exploration permits covering 468km<sup>2</sup> located in southwest Burkina Faso in the central part of the Houndé Greenstone Belt. This belt hosts a number of high-grade gold discoveries, including the Siou, Yaramoko and Houndé deposits, the latter property being contiguous with Golden Hill. To the south of Golden Hill is another large land position where active exploration programs are well underway.

Teranga, through its acquisition of Gryphon Minerals Ltd., has an earn-in agreement on the Golden Hill and Gourma Gold Projects with Boss, pursuant to the following salient terms of the joint venture:



- Teranga currently owns 51% interest in the Golden Hill and Gourma Gold Projects;
- Teranga to sole manage the joint venture and fund all exploration on the projects up to the completion of a DFS and Decision to Mine;
- Boss to have a free carried interest to completion of a DFS and decision to mine;
- On delivery of the DFS Teranga's interest in the joint venture will increase to 70%;
- Teranga has the right to acquire an additional 10% in the joint venture for A\$2.5 million;
- Upon completion of the DFS but prior to a Decision to Mine, Boss may elect to convert the remainder of their interest to a 1.5% Net Smelter Return, otherwise Boss shall be free carried to a decision to mine and will then be required to contribute on a pro rata basis; and
- Pre-emptive rights stipulated should a third-party offer exist.

### Appointment of Strategic Adviser

On 27 July 2017, the Company was pleased to announce the appointment of renowned international uranium expert Ms Sashi Davies as Strategic Adviser to strengthen and advance the Company's marketing, pricing and sales strategy for the Honeymoon Uranium Project.

Ms Davies has over 35 distinguished years of experience in the international uranium sector with extensive marketing expertise and an in-depth uranium knowledge base, having developed long-lasting relationships with international utilities and off-takers.

Based in Europe, Ms Davies will provide the Company with an important presence in the northern hemisphere and in close proximity to major uranium utilities.

Ms Davies served the past five years with the CGN Group and from 2014 to June 2017 as General Manager of CGN Global Uranium Ltd. Its principal shareholder, China General Nuclear Power Corporation ("CGN"), is the largest nuclear power operator in China and the largest nuclear power constructor worldwide. Prior to this role Ms Davies was Head of Marketing for Extract Resources Ltd, which was the subject of a CGN corporate transaction in 2012 valued at US\$2.2 billion for its majority shareholding in the world class Husab uranium mine in Namibia, one of the largest mining and processing uranium projects in the world.

During this period Ms Davies formed strong and successful working relationships with both the Chairman and the Chief Executive Officer of Boss, Messrs Mark Hohnen and Duncan Craib.

For further information please contact:

**Duncan Craib**                      **Chief Executive Officer: +61 (8) 6143 6730**

## Appendix 1

The following information is provided pursuant to Listing Rule 5.3.3 for the quarter ended 30 June 2017.

### SCHEDULE OF MINING TENEMENTS

Tenement Name	Location	Licence Number	Interest
Boutouanou	Burkina Faso	2011/11/410	49% (TGZ farming in)
Diabatou	Burkina Faso	2011/11/409	49% (TGZ farming in)
Tyara	Burkina Faso	2011/11-159	49% (TGZ farming in)
Foutouri	Burkina Faso	2011/11-160	49% (TGZ farming in)
Baniri	Burkina Faso	2009/09-060	49% (TGZ farming in)
Intiedougou	Burkina Faso	2009/09-061	49% (TGZ farming in)
Mougue	Burkina Faso	2009/09-062	49% (TGZ farming in)
Kankandi	Burkina Faso	10/142/MCE	49% (TGZ farming in)
Tyabo	Burkina Faso	10/144/MCE	49% (TGZ farming in)
Skogtrask Project	Sweden	Skogtrask nr.3	100%
		Palange nr.1	100%
Nottrask Project	Sweden	Norrtrask nr.9	100%
Lilltrask Project	Sweden	Lilltrask nr1, 2 and 3	100%
Yarramba	South Australia	EL5621 (previously ELA2014/00228)	80% (Right to acquire 100%)
South Eagle	South Australia	EL5215	80% (Right to acquire 100%)
Goulds Dam	South Australia	EL5623 (previously ELA2014/00240)	80% (Right to acquire 100%)
Katchiwilleeroo	South Australia	EL5622 (previously ELA2014/00239)	80% (Right to acquire 100%)
Ethiudna	South Australia	ELA161/16 (previously EL5043)	80% (Right to acquire 100%)
Goulds Dam	South Australia	RL83-90	80% (Right to acquire 100%)
Honeymoon Mine	South Australia	ML6109	80% (Right to acquire 100%)

There were no acquisitions or disposals during the quarter.



## Appendix 2

### Cautionary Statement concerning Preliminary Feasibility Study results including Inferred Resources

Boss Resources (the “Company”) has concluded that it has a reasonable basis for providing the forward looking statements and production targets discussed in this announcement. The detailed reasons for that conclusion are outlined throughout this announcement and in Appendix I and all material assumptions are disclosed in this document and in the JORC table disclosures of the relevant Resource Statements. The detailed assumptions regarding the Resources are outlined in the Company’s announcements dated 20 January 2016, 8 April 2016, 14 June 2016 and 15 March 2017.

This announcement has been prepared in accordance with the JORC Code (2012) and the ASX Listing Rules. The Company advises that the Preliminary Feasibility Study results, Production Targets and any Financial Information contained in this announcement are preliminary in nature as the conclusions are in-part based on low-level technical and economic assessments, and are insufficient to support the estimation of Ore Reserves or to provide an assurance of economic development at this stage. There is a low level of geological confidence associated with inferred mineral resources and there is no certainty that further exploration work will result in the determination of indicated mineral resources or that the production target itself will be realised. The outcomes of the Preliminary Feasibility Study however provide a reasonable basis for the Company to release the results whilst not providing an assurance of economic development at this stage. This is based on the current mining schedule indicating that for the first 2 years of production all of the material can be sourced from the Measured & Indicated Resources. Further to this 63% of production from Years 3 to 7 can be sourced from Measured & Indicated Resources for a total of 68 percent Measured & Indicated Resources over LOM. If the Inferred Resources are excluded, the economic analysis still forecasts a positive financial performance. The Company is therefore satisfied that the use of Inferred Resources is not the determining factor in overall Project viability and that it is reasonable to include the Inferred Resources in the PFS.

The Australian Securities and Investments Commission (ASIC) released Information Sheet 214, which concerns forward-looking statements by mining and resource companies (INFO 214). One of the matters raised is that forward-looking statements should only be made if the entity has reasonable grounds for concluding that funding will become available to the entity as and when required by the project’s development or production schedules. Additional funding will be required by Boss Resources to bring the Project into full production stage. The original Honeymoon plant with a design capacity of 0.88Mlbs U3O8 is currently on care and maintenance and is capable of being restarted with minimal capital expenditure. Boss has a current market capitalisation of ~A\$50 million and it has successfully raised ~A\$14.5 million over the last 18 months which is in line with the required re-start capital of US\$10 million (see Appendix I).

The Pre-Feasibility Study is based on material assumptions outlined in this announcement. Whilst the Company considers all the material assumptions to be based on reasonable grounds, there is no certainty that they will prove to be correct or that the range of outcomes indicated by the Pre-Feasibility Study will be achieved. Investors should note that there is no certainty that the Company will be able to raise the amount of re-start capital or additional funding (should it be required) for the Project when it is needed. It is also possible that such funding may only be available on terms that may be dilutive to or otherwise affect the value of the Company’s existing shares. It is also possible that the Company could pursue other value realisation strategies such as a sale, partial sale or joint venture of the Project. If it does, this could materially reduce the Company’s proportionate ownership of the Project.

Given the uncertainties involved, investors should not make any investment decisions based solely on the results of the Pre-Feasibility Study.



The Board confirms that the results from the Pre-Feasibility Study are positive and that this justifies the Company committing to the next stage of exploration and development by progressing through to the Definitive Feasibility Study.

#### **Competent Person's Statements**

The information in this document that relates to the Exploration Data is based on information provided by Mr. Neil Inwood, who is a Fellow of the AUSIMM. Mr Inwood is a consulting geologist and has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity undertaken to qualify as Competent Persons as defined in the 2012 edition of the "Australasian Code for Reporting of Mineral Resources and Ore Reserves". Mr. Inwood has consented to the inclusion of this information in this document in the form and context in which it appears and confirms that the form and context in which the Competent Person's findings are presented have not materially changed since initial release to the market on 6 December 2016, 8 December 2016, 14 December 2016 and 3 February 2017. An entity associated with Mr Inwood has shares in Boss Resources.

The information in this report that relates to the Mineral Resources is based on information compiled by Dr Marat Abzalov, who is a Competent Person according to the JORC 2012 Code. Dr Abzalov is a Fellow of Australasian Institute of Mining and Metallurgy. He has sufficient experience in estimation Resources of uranium mineralisation, and have a strong expertise in the all aspects of the data collection, interpretation and geostatistical analysis to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting Exploration Results, Mineral Resources and Ore Reserves'. Dr Abzalov is employed as a director of Boss Resources and is also working as an independent consultant and Director of MASSA Geoservices (Australia). Dr Abzalov has consented to the inclusion of this information in this document in the form and context in which it appears and confirms that the form and context in which the Competent Person's findings are presented have not materially changed since initial release to the market on 14 June 2016 (Honeymoon and Goulds Dam Resources) and 15 March 2017 (Jasons Resource).