Cautionary Statement: HONEYMOON ENHANCED FEASIBILITY STUDY

As the Enhanced Feasibility Study (EFS) for Honeymoon utilises a portion of Inferred Mineral Resources, the ASX Listing Rules require a cautionary statement to be included in this announcement.

The EFS referred to in this announcement is based on a Mineral Resources Estimate in accordance with JORC guidelines 2012 (ASX: 149% Increase in Measured and Indicated Resources at Honeymoon date 25 February 2019). The Company advises that the EFS uses a portion of Inferred Resources; in the first 3 years (less than 4%) and over the 11-year life of mine (24.7%). The Company confirms that the use of Inferred Resources is not a determining factor to the Honeymoon Project's economic viability.

There is a low level of geological confidence associated with Inferred Resources and there is no certainty that further exploration or evaluation work will result in the determination of Indicated Resources or that the production targets reported in this announcement will be realised.

The Mineral Resources underpinning the production target in the EFS were prepared by a competent person in accordance with the requirements of the JORC Code (2012) and were initially reported by the Company in accordance with listing rule 5.8 on 20 January 2016, 8 April 2016, 15 March 2017 and 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 announcements and that all material assumptions and technical parameters underpinning the estimates in the relevant market announcements continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcements.

The Exploration Target referred to in this announcement was reported by the Company in accordance with listing 5.7 25 March 2019. The Company confirms 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 the previous announcement continue to apply and have not materially changed. The Exploration Target does not include areas of the existing Mineral Resource and the potential quantity and grade reported are conceptual only in nature. Insufficient exploration has been conducted to estimate a Mineral Resource and it is uncertain whether future exploration will lead to the estimation of a Mineral Resource in the defined areas.

This EFS referred to in the announcement includes forward-looking statements. These forward-looking statements are based on the Company's expectations and beliefs concerning future events. Forward-looking statements are necessarily subject to risks, uncertainties, and other factors, many of which are outside the control of Boss Energy Ltd, which could cause actual results to differ materially from such statements. Boss Energy Ltd 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.

The Company has concluded that it has a reasonable basis for providing the forward-looking statements and production targets included in this announcement. The detailed reasons for this conclusion are outlined throughout this announcement and at Appendix 1.

ASX Release 21 June 2021

BOSS ENERGY LTD

HONEYMOON URANIUM PROJECT, SOUTH AUSTRALIA

Updated Feasibility Study identifies lower costs and increased financial returns

Strong results pave the way for Boss to progress offtake discussions and project funding, putting Honeymoon on track to be Australia's next uranium producer

HIGHLIGHTS

- Enhanced Feasibility Study incorporates planned changes to Honeymoon's processing plant to lower costs and increase financial returns
- Honeymoon pre-tax NPV now estimated to be US$309m (up 35% from last year's Feasibility Study); Forecast pre-tax IRR is 47% and EBITDA margin is 62%
- Nameplate production capacity rises 22.5% to 2.45Mlb of U_3O_8
- All-In Costs fall 11% to US$31.86/lb; All-In-Sustaining Costs fall 16% to US$25.62/lb; with Cash Costs falling 21% to US18.46/lb
- Capital cost of expanding production estimated to be US$80m – utilising Ion Exchange as a replacement of the existing Solvent Extraction plant
- Boss retains the option of feeding its strategic 1.25Mlb U_3O_8 inventory[1] into its contract portfolio post commissioning of Honeymoon; This inventory has a value of US$75m based on EFS pricing[2] but is not included in these EFS results
- Honeymoon is fully permitted for production, storage and export of U_3O_8[3]
- EFS is based on only 36Mlbs of the total JORC Resource of 71.6Mlbs[4], highlighting scope for significant growth

"This study demonstrates that Boss is perfectly placed to capitalise on a strengthening uranium market with an existing plant and mine in a tier-one location with low costs and strong financial returns." – Boss MD Duncan Craib

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[1] Refer to ASX announcement dated 29 March 2021.
[2] The EFS is based on a U_3O_8 price of US$60/lb and an exchange rate of A$1:US$0.75. We note that the current spot price of U_3O_8 is approximately US$32.5/lb.
[3] Refer to ASX announcement dated 8 April 2019.
[4] Refer to ASX announcement dated 25 February 2019.

FOR FURTHER INFORMATION PLEASE CONTACT:

Boss Energy 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

Paul Armstrong – Public Relations
+61 (08) 9388 1474

ASX: BOE OTC: BQSSF

www.bossenergy.com

@Boss_Energy

Boss Energy Limited (ASX: BOE ; OTC: BQSSF) (**Boss** or the **Company**) is pleased to report that the Enhanced Feasibility Study (**EFS**) on its 100 per cent-owned Honeymoon Uranium Project in South Australia has reinforced the technical and financial robustness of the Project.

The EFS was based on revised capital and operating estimates, revised wellfield design plan and revised economic assumptions reflecting continued improvement in the outlook for uranium supply-demand fundamentals. Specifically, the capital cost captures savings made in relation to the improved elution circuit and incorporates the upfront inclusion of the NIMCIX columns that drive operating cost efficiency.

The results have further reinforced the Project's exceptional financial and technical merits, delivering significantly enhanced financial returns, and was completed to an accuracy of -10/+15%. This is the second high confidence study completed on Honeymoon in the past 18 months.

Based on its JORC Resource at the Honeymoon Restart Area (**HRA**) of 36Mlbs of U_3O_8, Honeymoon has a Life of Mine (**LOM**) of plus-10 years at a forecast production rate of 2.45Mlb/annum. There is a further 35.6Mlbs in JORC Resources outside the HRA and significant exploration potential.

Importantly, the EFS found that the proposed changes to Honeymoon's processing method would cut all-in-sustaining costs (**AISC**) by 16% to US$25.62/lb and lead to a 35% increase in pre-tax project NPV, taking it to US$309 million. These figures compare with those in the Feasibility Study of January 2020 (**FS** or **Feasibility Study**) at a U_3O_8 price of US$60/lb and an exchange rate of A$1:US$0.75.

Table 1: *Key Financial Outcomes of the Enhanced Feasibility Study*

Key Financial Outcomes[5]	Unit	Enhanced Feasibility Study Jun-21	Feasibility Study* Jan-20	
$NPV_{8\%}$ (pre-tax)	US$M	**308.75**	228.27	35% increase
IRR (pre-tax)	%	**47.1%**	51.4%	-
Life of Mine (LOM)	Years	**11**	12	-
Uranium Produced (LOM)	Mlb U_3O_8	**21.81**	20.74	5% increase
Total Project Payback	Years	**3.5**	4.0	Reduction
OPERATING COST				
All-In Cost (LOM)[6]	US$/lb U_3O_8	**31.86**	35.92	11% reduction
All-In-Sustaining Cost (LOM)[7]	US$/lb U_3O_8	**25.62**	30.46	16% reduction
Cash Cost (LOM)[8]	US$/lb U_3O_8	**18.46**	23.25	21% reduction
CAPITAL COST				
Capital Cost (Re-start)	US$M	**60.19**	69.68	14% reduction
Capital Cost (Additional IX columns)	US$M	**19.82**	-	-
Total Capital Cost (including contingency)	US$M	**80.01**	69.68	15% increase

**For comparative purposes only, key financial outcomes for the Feasibility Study are presented using a U_3O_8 price of US$60/lb and an exchange rate of A$1:US$0.75. Nothing in the above table changes the results of the Feasibility Study released on the ASX on 21 January 2020.*

[5] *All key financial outcomes based on a discount rate of 8%, U_3O_8 price of US$60/lb and an exchange rate of A$1:US$0.75.*
[6] *AIC = AISC + upfront and deferred capital expenditure.*
[7] *AISC = Cash Costs + royalties and sustaining capital expenditure.*
[8] *Cash Costs = all mining costs, onsite processing costs, onsite general and administration costs and logistical costs.*

Boss considers a base case price of US$60/lb U_3O_8 over the LOM is reasonable given that current spot and term uranium prices are well below the price required to guarantee viability of a large proportion of the world's existing production. Uranium analysts predict that a long-term spot price in the mid US$40's will incentivise restart of idled production while a spot price closer to US$60/lb will be needed for most new mines.

The findings show Honeymoon is set to enjoy extremely robust margins given that contract prices for uranium are currently in the high US$30's/lb.

The EFS found that CAPEX of US$80 million is required to re-start Honeymoon. This cost increase, compared to the FS (approximately ~US$10M), is directly related to Boss' plan to remove the existing Solvent Extraction (**SX**) plant and replace it with an Ion Exchange (**IX**) plant much earlier in the mine life to shorten ramp up time and reduce technical risks associated with the existing solvent extraction plant. This results in an increased production capacity of 2.45Mlb/annum of U_3O_8.

Boss Managing Director Duncan Craib said the EFS showed Honeymoon was firmly on track to be Australia's next uranium producer.

"The study shows conclusively that the changes we plan to make to the processing plant will increase annual production, cut costs significantly and increase overall financial returns," Mr Craib said.

"With forecast all-in costs of US$31.86/lb and contract uranium prices running in the high US$30's/lb, Honeymoon is already poised to be an extremely robust project.

"The outlook is even stronger when viewed against the widely-held belief in financial and energy markets that the uranium price is set to continue climbing on the back of a supply shortage, declining inventories and growing demand due to its carbon-free status.

"This study demonstrates that Boss is perfectly placed to capitalise on a strengthening uranium market with an existing plant and mine in a tier-one location with low costs and strong financial returns.

"In conjunction with these outstanding results, the recently acquired strategic inventory of 1.25 million pounds of uranium enables Boss to continue to de-risk the planned re-start of the Honeymoon and provide increased flexibility as we continue to progress project funding and offtake negotiations."

Mr Craib said that in light of the strong findings, and strengthening uranium market, Boss would also advance its exploration activities aimed at growing Honeymoon's mineral resource and mine life at numerous highly promising near-mine and regional targets.

Technical Detail

Following the strong FS results released in January 2020, which already positioned Honeymoon as one of the world's most advanced uranium development projects that can be fast-tracked to re-start production in 12 months, Boss focussed on building a more resilient and sustainable mining operation.

The production limitations and operational complexity associated with restarting the existing SX plant and then incorporating an IX plant were deemed unsatisfactory.

Boss embarked on a series of technical optimisation studies to improve Honeymoon's position as a globally competitive mining operation. These studies culminated in plans to remove the existing SX plant and replaced it with IX capacity to increase the production profile to 2.45Mlb/annum over a plus-10 year mine life and reduce operating costs to achieve industry benchmark goals for low-cost producers of AISC of US$25/lb and cash costs lower than US$20/lb.

Conservatively, the EFS provides a base case to fast-track uranium production from Honeymoon's HRA utilising only 36Mlbs of the Project's global JORC Resource of 71.6Mlbs. No further permitting is required to resume production and Honeymoon has a valid Uranium Mineral Export Permission for 3.3Mlb/annum.

This means there is substantial scope to extend the mine life and increase the EFS production nameplate capacity of 2.45Mlb/annum from the remaining identified JORC Resource. There are also significant resource growth opportunities from Honeymoon's significant defined Exploration Target[9].

Boss and GR Engineering Services Limited (**GRES**) have redesigned the Honeymoon process plant to substantially increase the nameplate capacity without a large increase in overall footprint. Provision has also been made in the design to accommodate additional satellite IX input to the process plant to easily allow additional resources to be accessed in a spoke and hub model. Satellite IX capture and resin transport has been used successfully in the USA for decades and represents an efficient way to access resources which may be distant from a central processing facility.

To unlock this value, Boss' geologists are in the field completing ground-based, low-cost and non-invasive geophysical surveys within its substantial 2,595km^2 exploration package. Following the completion of the surveys and subsequent interpretation of the results, the Company plans to undertake exploration drill programs to exploit the identified areas of interest commencing in the December quarter 2021.

The Company anticipates the satellite resources to allow both an increase in the overall production profile with minimal disturbance to operations and extend the mine life of the Honeymoon Project. Boss holds high expectations that its exploration activities will continue to deliver increase Resources. The Company has grown the global JORC resource from 16.6Mlbs to 71.6Mlbs (~331% increase) since acquiring Honeymoon in December 2015.

COMPARISON TO 2020 FEASIBILITY STUDY

Figure 1 and Figure 2 below demonstrate the impact of key updates of the EFS on the measured $NPV_{8\%}$ (Pre-tax) and AISC of production. For comparative purposes only, the key financial outcomes for the Feasibility Study have been presented in the graphs below using a U_3O_8 price of US$60/lb and an exchange rate of A$1:US$0.75 however nothing changes the results of the Feasibility Study released on the ASX on 21 January 2020.

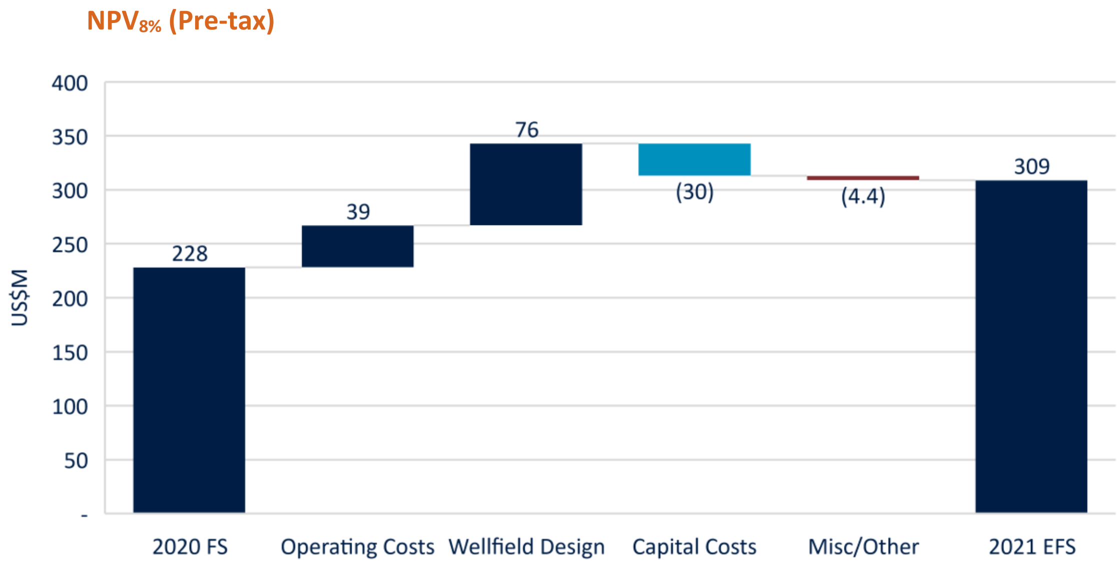

Figure 1: *$NPV_{8\%}$ (Pre-tax) waterfall chart from 2020 FS to 2021 EFS*

[9] *Refer ASX announcement dated 25 March 2019.*

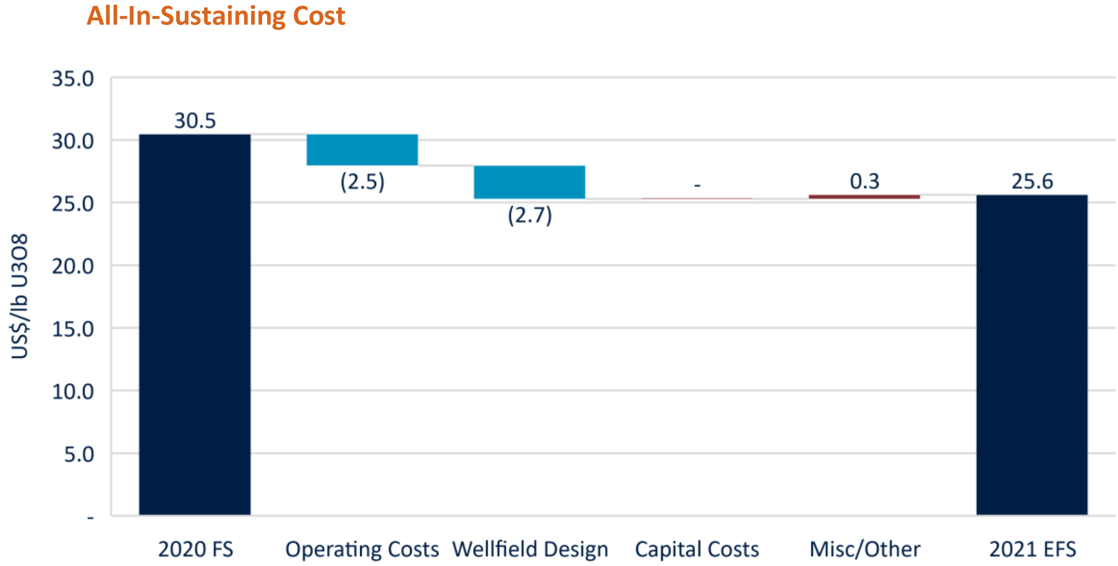

Figure 2: *AISC waterfall chart from 2020 FS to 2021 EFS*

STRATEGIC URANIUM INVENTORY

To further support the restart of Honeymoon, Boss recently acquired 1.25Mlbs of U_3O_8 on the uranium spot market.

The acquisition of the strategic uranium inventory delivers several significant benefits for Boss, including:

- Enhanced financial position to support the planned re-start of Honeymoon;
- Increased flexibility in project funding and offtake negotiations with customers;
- De-risking Honeymoon re-start during commissioning phase.

This inventory means Boss is fully leveraged to any future appreciation of uranium price on the back of tight supply-demand fundamentals.

NEXT STEPS

The Company's next steps are focused on:

- Progressing off-take negotiations and project financing efforts, while advancing the project towards development; and
- Developing a plan for increasing production profile and extending mine life through development of satellite resources
- Maintaining a strong exploration focus, advance program on near-mine and regional targets.

The EFS was compiled with the assistance of several independent and reputable Australian-based engineering companies, global industry experts and qualified Boss personnel.

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

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

For media enquiries, contact:
Paul Armstrong
Read Corporate
P: +61 (8) 9388 1474
E: info@readcorporate.com

BOSS ENERGY LTD

TABLE OF CONTENTS

1. INTRODUCTION

Following the strong FS results released in January 2020, the Company embarked on a series of technical optimisation studies to transform Honeymoon into a globally competitive and resilient mining operation. These studies culminated in plans to replace the existing SX plant with an IX plant during the Start-up phase followed by a doubling of IX capacity in the Ramp-up phase on the Project.

Preliminary results were so promising that Boss initiated the EFS to prove an increase in production profile and reduction of operating costs could be achieved for Honeymoon. The EFS team was lead and managed by Boss personnel (**Owner's Team**) reporting to the Board, and in September 2020, independent consultants GRES were engaged to integrate these findings and previously announced process optimisation studies to update the strong economics detailed in the FS.

The Start-up phase would operate using the existing near-mine Honeymoon In-situ Recovery (**ISR**) wellfields and three NIMCIX trains in the IX facility. Following Ramp-up, with a parallel IX facility and new near-mine wellfields, located within the HRA, the production capacity is increased to a nameplate capacity of 2.45Mlb/annum. Further expansion of production capacity to the export permit limit of 3.3Mlb/annum will be a focus for Boss by exploiting additional resources which sit outside the HRA, but are not included in this EFS.

The EFS follows on from the extensive packages of technical work Boss has completed since it acquired Honeymoon from Uranium One in December 2015, specifically:

- A Scoping Study in 2016;
- A Pre-Feasibility Study (**PFS**) released in May 2017;
- A Field Leach Trial (**FLT**) and IX piloting campaign in 2017;
- Numerous trade-off and optimisation studies in 2018 and 2019;
- An increased Mineral Resource estimate released in February 2019;
- A Re-start Assessment undertaken in 2019; and
- A Feasibility Study released January 2020.

The GRES scope of work for the EFS included the following:

- Develop designs for expansion of Honeymoon to nameplate capacity of 2.45Mlb/annum;
- Preparations of capital and operating costs for the Project to an accuracy of -10/+15%;
- Preparation of a cash flow schedule for Life of Mine for financial modelling of the Project;
- Carry out a risk and opportunity assessment for the Project; and
- Develop recommendations to further increase the production profile as identified JORC resource and exploration targets sitting outside the HRA are proved up.

Boss's Owner's team who led the EFS comprised of:

Bryn Jones

Mr Jones (MMinEng) is an industrial chemist with more than 20 years of experience in the uranium industry. He has worked in all aspects of the mining cycle, particularly in uranium in-situ recovery and mine development and production. Mr Jones spent nearly 10 years in roles with ISR uranium producer Heathgate Resources, Australia's other producing ISR uranium mine located 270kms to the west of Honeymoon.

Trevor Robinson (Project Manager)

Trevor has over 35 years of professional experience. His expertise is in the evaluation, design, construction, commissioning and management of metallurgical projects; including uranium, nickel, gold, and copper. Trevor's significant uranium experience includes NIMCIX ion exchange commissioning and operation in Namibia with Swakop Uranium which is very relevant to Honeymoon. Additional uranium experience has been gained at Olympic Dam, Ranger and Rossing.

Merrill Ford (Process Consultant)

Dr Merrill Ford is an independent metallurgical consultant. He joined ANSTO in March 2003 as Manager Special Projects, and from July 2008 until April 2016 he was Manager Metallurgy for Paladin Energy, becoming an independent consultant in 2016. As an independent consultant to the uranium industry Merrill has provided input to feasibility and operational studies for a number of uranium clients, including Cameco, Paladin, Energy Metals, and Swakop Uranium.

Jeremy Green (Civil Engineer)

Jeremy has 40 years of experience in all aspects of civil and structural design with an emphasis on resource developments, with extensive engineering experience at a senior level on many projects. His experience has provided a good understanding of design, design logistics and practical construction factors.

The Company also re-appointed their key external advisers, who are leading industry specialists and possess an inherent understanding of Honeymoon having worked alongside the Boss management over the past 5 years. Their high-quality technical abilities, coupled with input from the Owner's Team, will ensure a robust technical approach to completing the EFS and successfully restarting Honeymoon.

- GR Engineering Services Limited; continues as engineering and lead study consultant. All process, mechanical, civil, structural, piping, electrical, instrumentation engineering and process control design;
- Mineral Resource estimate by AMC Consultants;
- Australian Nuclear Science and Technology Organisation Minerals Laboratories (**ANSTO**); continues to provide supporting testwork for the optimised NIMCIX and elution design;
- Wellfield design and production scheduling by Groundwater Science;
- Inception Group; continues to provide expert ISR process support; and
- Infinity Corporate Finance; continues to provide financial modelling services.

2. KEY FINANCIAL OUTCOMES OF ENHANCED FEASIBILITY STUDY

For comparative purposes only, the key financial outcomes for the Feasibility Study have been presented below using a U_3O_8 price of US$60/lb and an exchange rate of A$1:US$0.75.

Table 2: *Key Financial Outcomes of EFS vs FS*

Key Financial Outcomes[10]	Unit	Enhanced Feasibility Study Jun-21	Feasibility Study* Jan-20
PRICE INPUTS			
LOM Average Uranium Price	US$/lb U_3O_8	**60**	60
US$/A$	A$	**0.75**	0.75
VALUATION, RETURNS, KEY RATIOS			
NPV$_{8\%}$ (pre-tax, real basis, ungeared)	US$M	**308.75**	228.27
NPV$_{8\%}$ (post-tax, real basis, ungeared)	US$M	**213.86**	158.57
IRR (pre-tax, real basis, ungeared)	%	**47.1%**	51.4%
IRR (post-tax, real basis, ungeared)	%	**37.2%**	39.7%
Total Project Payback (post tax, from first production)	Years	**3.5**	4.0
CASHFLOW SUMMARY			
Life of mine (LOM)	Years	**11**	12
Uranium produced (LOM)	Mlb U_3O_8	**21.81**	20.74
Gross revenue (LOM)	US$M	**1,279**	1,199
Free cash flow (Pre-tax)	US$M	**580**	452
Free cash flow (Post-tax)	US$M	**425**	332
EBITDA margin (average over LOM)	%	**62.0%**	53.3%
Accumulated tax losses (as at 30 June 2020)	US$M	**63.6**	59.7
UNIT OPERATING COST			
All-In Cost (LOM)[11]	US$/lb U_3O_8	**31.86**	35.92
All-In-Sustaining Cost (LOM)[12]	US$/lb U_3O_8	**25.62**	30.46
Cash Cost (LOM)[13]	US$/lb U_3O_8	**18.46**	23.25
CAPITAL COST			
Capital Cost (Re-start)	US$M	**60.19**	69.68
Capital Cost (Additional IX columns)	US$M	**19.82**	-
Total Capital Cost (including contingency)	US$M	**80.01**	69.68

**For comparative purposes only, key financial outcomes for the Feasibility Study are presented using a U_3O_8 price of US$60/lb and an exchange rate of A$1:US$0.75. Nothing in the above table changes the results of the Feasibility Study released on the ASX on 21 January 2020.*

[10] *All key financial outcomes based on a discount rate of 8%, U_3O_8 price of US$60/lb and an exchange rate of A$1:US$0.75.*
[11] *AIC = AISC + upfront and deferred capital expenditure.*
[12] *AISC = Cash Costs + royalties and sustaining capital expenditure.*
[13] *Cash Costs = all mining costs, onsite processing costs, onsite general and administration costs and logistical costs.*

3. PROJECT BACKGROUND

Honeymoon is a 100% owned pure play uranium mine located in South Australia, with a brownfield restart asset that drummed its first product in August 2011 and exported U_3O_8 to the global markets before being placed in care and maintenance due to low uranium prices in early 2014. Boss acquired Honeymoon from Uranium One Pty Ltd (**Uranium One**) in December 2015.

The Project consists of two main exploration areas (the Eastern and Western tenement regions) with one granted Mining Lease 6109 (**ML6109**), totalling a 2,595km^2 tenement package.

Mining at Honeymoon is endorsed by the local indigenous communities with Native Title agreements in place. Mining and uranium export permits (both State and Federal) are still valid, which means production at the original design throughput can recommence at Honeymoon within a short lead time.

Since acquiring Honeymoon, Boss's strategy has been to develop a larger processing facility utilising IX technology to improve the economics of the Project. This strategy commenced upon acquisition with a detailed assessment of where technical improvements could be made by considering prior operational results. The EFS proves an increase production profile and reduced operating costs can be achieved for Honeymoon, and also address operating challenges Uranium One encountered, including:

Table 3: *Improvements from Uranium One operations*

Identified For Improvement	Uranium One	Boss Improvement	Solution
Leach Fluid Stability	pH ~2	pH 1.5	Increase Silica Stability
	Low iron (Fe)	1.5 g/L Fe	'Ties-up' sulphate (supress gypsum formation)
	Large Bleed Treatment	Groundwater Pre-Treatment	Cost effective Ca and Cl removal
High Operating Cost	SX (100%)	NIMCIX (EFS- 100%)	Lower unit costs
	High pH/Low Fe	Revised Leach Chemistry	Faster leaching (higher feed grade)
	Unstable Leachate	Stable Leachate	Lower wellfield maintenance
Low Uranium Production	SX Only	Modular NIMCIX	Enables much higher throughput with lower footprint
	Complex Operation	Simple Operation	Less operators / unit production
Product Quality	Organic (SX) Contamination	Eliminated	Improved product safety and saleability
	Fe Contamination	Fe does not load on IX	Lower probability of Fe rejection
	Low wash capacity	Introduced 2 stage re-pulp	Improved product wash efficiency
	Vacuum Dryer (UO_4)	Calciner (U_3O_8)	Higher packing density
			Improved customer acceptance
Environmental Outcomes	Potential for solvent loss to wellfield	Eliminated through IX	Lower environmental impact

As a result of the highly successful technical optimisation studies conducted since Honeymoon's acquisition, Honeymoon has been transformed into a globally competitive and resilient mining operation.

Project History

In 1982, following the Commonwealth and State governments' approval of an Environmental Impact Statement (**EIS**) for the project, the Minad Teton CEC joint venture established a demonstration ISR operation at Honeymoon.

Before the wellfield or the demonstration plant could be commissioned, a change in State Government in South Australia shortly followed by a change in Commonwealth Government deferred the final 'Approval to Mine', with the project placed under care and maintenance in March 1983.

During the period 1983 to 1997, infrastructure associated with the plant, such as support buildings and accommodation facilities were removed. Well casings in the pilot wellfield were cut off below ground level and sealed. Only the demonstration plant and warehouse remained.

In May 1997, ownership of the Honeymoon Mine passed to Minad's parent company MIM Holdings, which was acquired by Southern Cross Resources. Associated Miscellaneous Purpose Licences 14, 15 and Retention Leases 10, 11 and 12 were also acquired by Southern Cross Resources in 1997. Southern Cross Resources later became Uranium One Inc.

In 1998, following the granting of State and Commonwealth approvals, Southern Cross Resources conducted a field leach trial (1999-2000). This ISR field leach trial utilised five connected well patterns, with several injection wells common to more than one recovery well.

In May 2000, an EIS was prepared by Southern Cross Resources to satisfy State and Commonwealth legislative requirements for granting a Mining Lease over Retention Leases 10, 11 and 12 and Mineral Claims 3075, 3077, 3078 and 3079. ML6109 was granted in 2001, followed by two Miscellaneous Purpose Licence (**MPL**) 15 and 64 in 2002, and finally MPL 92 in 2008.

In 2007, the Honeymoon Project Construction approvals documentation was submitted for assessment under the South Australia Mining Act 1971. Construction was approved by Primary Industries and Resources SA in early 2008. Construction of the Honeymoon Mine was completed in the first quarter of 2011.

Boss acquired 80% of the Project in December 2015 from Uranium One, with Wattle Mining Pty Ltd holding the remaining 20%. Boss subsequently acquired the remaining 20% of the Project in February 2018, and therefore moved to 100% ownership of Honeymoon held by its wholly owned subsidiary Boss Uranium Pty Ltd.

Project Location

The Project is located in South Australia approximately 80km north-west from the town of Broken Hill, near the border with New South Wales. Australia's only producing uranium mines are located in South Australia.

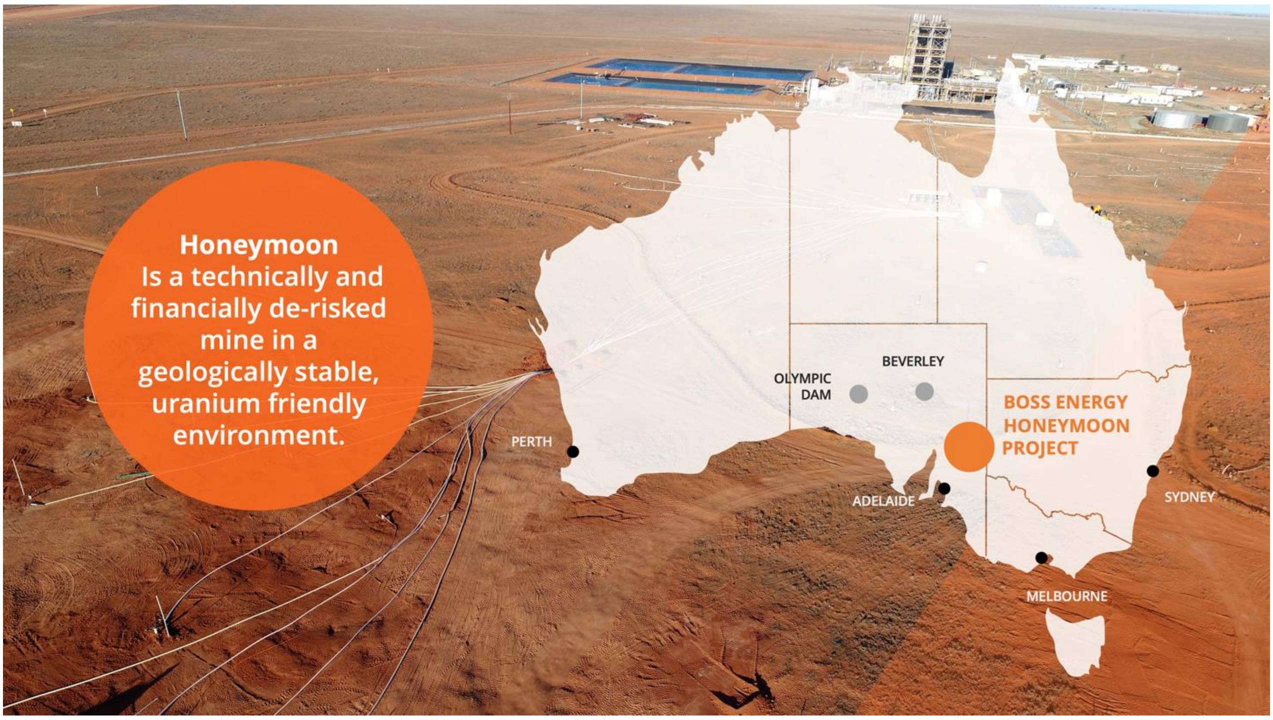

Figure 3: *Honeymoon Uranium Project location*

Existing Assets

The infrastructure associated with the Project includes the following key items:

- SX processing plant with capacity to produce 0.88Mlb/annum;
- Four ISR wellfields, currently on care and maintenance;
- 150-person accommodation camp;
- Administration buildings and offices;
- Workshop and stores building;
- Laboratory;
- Fleet of mobile equipment, vehicles, spares, consumables, tools and other equipment;
- 50km high voltage (33kV) power line connected to grid power;
- Raw water bore field;
- Access road from the Barrier Highway, including shared and private sections; and
- Airstrip capable of accommodating small planes.

Sunk capital for plant and associated infrastructure was A$170 million.

4. TENEMENTS

Honeymoon is located between the Olary Ranges and Lake Frome, and forms part of the south-eastern extremity of the Lake Eyre drainage system.

The 2595km^2 tenement package covers approximately 980km^2 of pastoral leases. The project consists of one granted Mining Lease, ML6109, which contains the Honeymoon mine site and 5 Exploration Leases (**EL**) covering prospects at Honeymoon and Gould's Dam, 70km northwest of Honeymoon. All leases are in good standing.

Two Miscellaneous Purposes Licences cover the infrastructure at Honeymoon including the powerline and the airstrip. Three Retention Leases (**RL**) cover the main Gould's Dam resource area. The Retention Lease grants security of tenure to conduct further exploratory operations. A Crown Lease (**CL18063**) covers the area of the Honeymoon mine site.

Table 4: *Honeymoon Mining Leases and exploration tenements*

Tenement Number	Holder	Name	Area km^2	Expiry Date
ML 6109	Boss Uranium Pty Ltd	Honeymoon Mine	10	07/02/2023
EL 6510	Boss Uranium Pty Ltd	Yarramba	452	28/05/2022
EL 6511	Boss Uranium Pty Ltd	Katchiwilleroo Dam	652	28/05/2022
EL 6512	Boss Uranium Pty Ltd	Gould's Dam	334	28/05/2022
EL 6020	Boss Uranium Pty Ltd	Ethiudna	778	22/02/2022
EL 6081	Boss Uranium Pty Ltd	South Eagle	379	25/09/2022

Table 5: *Honeymoon Project accessory tenements*

Tenement Number	Holder	Name	Area Hectares	Expiry Date
RL 83	Boss Uranium Pty Ltd	Billeroo West Station	250	22/11/2022
RL 84	Boss Uranium Pty Ltd	Billeroo West Station	250	22/11/2022
RL 85	Boss Uranium Pty Ltd	Billeroo West Station	250	22/11/2022
MPL 92	Boss Uranium Pty Ltd	Powerline	229.7	07/02/2023
MPL 15	Boss Uranium Pty Ltd	Airstrip	249.75	07/02/2023
CL 18063	Boss Uranium Pty Ltd	Crown Lease	499.5	01/04/2022

5. GEOLOGY

Mineral Resource Estimate

Based on the JORC Resource of Honeymoon's HRA of 36Mlb of U_3O_8, Honeymoon has a mine life of plus-10 years at a forecast production rate of 2.45Mlb/annum. ML6109 sits on top of the HRA. There is a further 35.6Mlb in JORC Resources outside the HRA and significant exploration potential. No further permitting is required to resume production and Honeymoon has a valid Uranium Mineral Export Permission for 3.3Mlb/annum.

In February 2019, the Mineral Resource (JORC 2012) estimate for the HRA was updated by independent mining resource experts AMC, and upgraded **to 24Mt at an average grade of 660ppm U_3O_8 for a total contained uranium oxide of 36Mlbs U_3O_8 using a cut-off grade of 250 ppm U_3O_8.**

The Mineral Resource was classified as a combination of Measured, Indicated and Inferred material in accordance with JORC Code 2012 guidelines.

Table 6: *Summary of JORC Resource – HRA*

Resource Classification	Tonnage (Mt)	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	14.0	610	8.7	19.0
Inferred	7.0	590	4.1	9.1
Total	**24**	**660**	**16.0**	**36.0**

**The HRA Mineral Resource excludes the separate Jason's and Goulds Dam Mineral Resources. The model is reported unconstrained and above a 250 ppm U_3O_8 lower cut-off grade for all zones. Density is assigned as 1.9 t/m^3 on the basis of limited test work. Totals may vary due to rounded figures.*

In addition to the HRA the Project also consists of the Jason's Deposit and Gould's Dam Deposit situated approximately 15km to the north and 75km to the northwest, respectively.

As part of the 2019 Mineral Resource estimation work the global Mineral Resource for the entire Project was also updated. The resulting effect on the global Mineral Resource was an increase to **52.4Mt at an average grade of 620 ppm U_3O_8 containing a total of 71.6Mlbs U_3O_8 using a 250ppm U_3O_8 cut-off**.

Table 7: *Summary of JORC Resource – Global Honeymoon Uranium Project*

Resource Classification	Tonnage (Mt)	Average Grade (ppm U_3O_8)	Contained Metal (Kt, U_3O_8)	Contained Metal (Mlb, U_3O_8)
Jason's (March 2017)[14]				
Inferred	6.2	790	4.9	10.7
Gould's Dam (April 2016)[15]				
Indicated	4.4	650	2.9	6.3
Inferred	17.7	480	8.5	18.7
Honeymoon Restart Area (January 2019)				
Measured	3.1	1,100	3.4	7.6
Indicated	14.0	610	8.7	19.0
Inferred	7.0	590	4.1	9.1
Global Honeymoon Uranium Project				
Measured	3.1	1,100	3.4	7.6
Indicated	18.4	630	12.0	25.5
Inferred	30.9	570	18.0	38.5
Total	**52.4**	**620**	**32.5**	**71.6**

Exploration Potential

In March 2019, Boss updated its Exploration Target range for the Project, which now comprises an initial ten target areas; seven in the Eastern Region tenements and three situated within the Western Region tenements. The Exploration Target[16] for the Project is in the range of **28Mt to 133Mt of mineralisation at a grade of 340ppm to 1,080ppm U_3O_8 for a contained 58 to 190Mlbs U_3O_8 (26,300 to 86,160 tonnes of contained U_3O_8), using a cut-off grade of 250ppm U_3O_8.**

This range demonstrates that, in addition to the global JORC Resource there is potential for a significant amount of additional uranium around the Project area. It must be noted, however, that this Exploration Target is purely conceptual in nature and there is currently insufficient exploration data to enable any Mineral Resource estimation in these areas.

[14] Refer to ASX announcement dated 15 March 2017
[15] Refer to ASX announcement dated 8 April 2016
[16] Refer to ASX announcement dated 25 March 2019

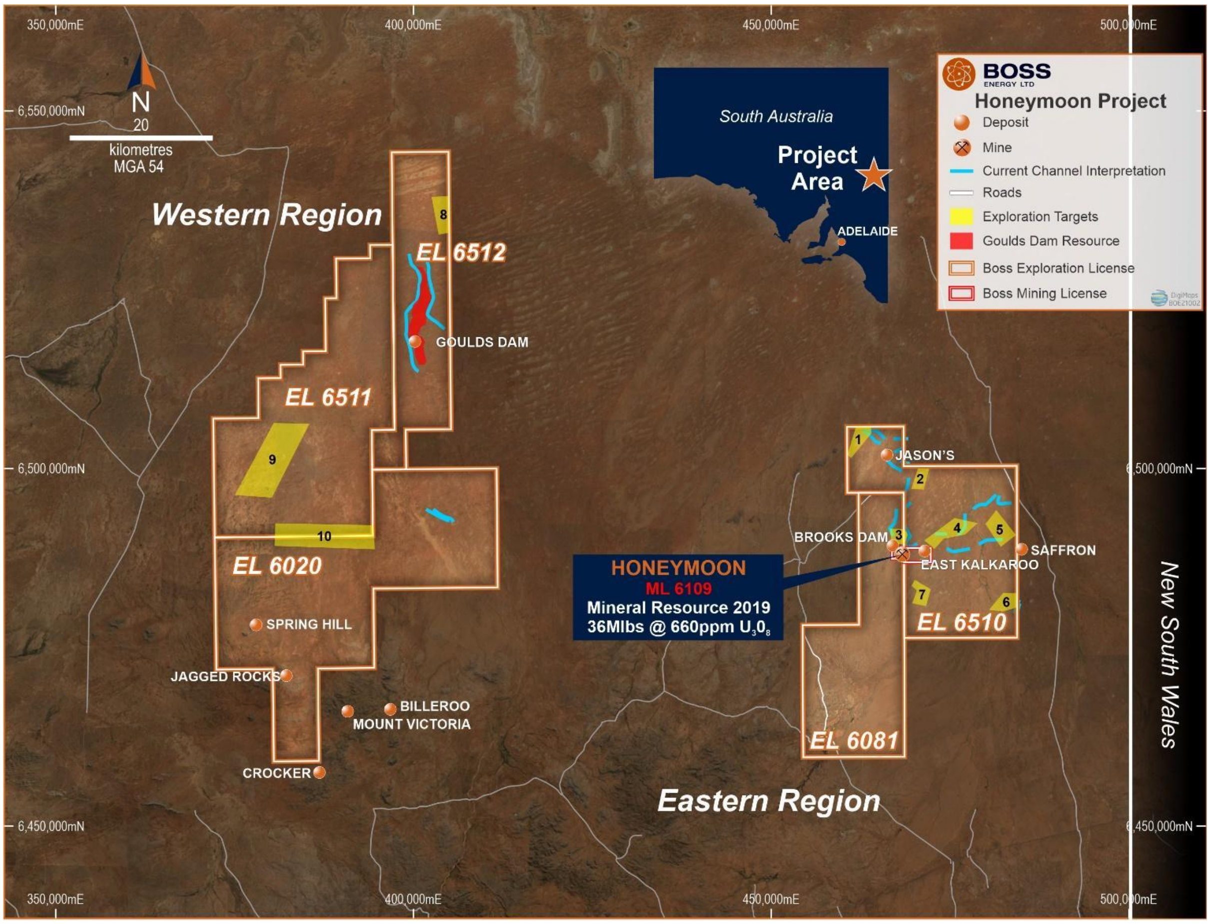

Figure 4: *Project Exploration Targets*

In the first quarter of 2020, the Boss geology team completed a comprehensive desktop review of all historic geoscientific information acquired since exploration began on the Project in the late 1960's. The exercise revealed a plethora of data, including geological field maps, field measurements of mapped structures and geochemical assays from rock chip samples sourced from exposed basement bedrock, proving potential for hard-rock uranium mineralisation in the southern parts of the tenements.

Extracted geophysical data include tenement-scale gravity surveys and prospect-scale ground magnetic surveys within both Eastern and Western Region tenements. Coincident gravity/magnetic anomalies have been identified that do not appear to have been drill tested and may indicate potential for Iron-Oxide-Copper-Gold type mineralisation, based on proximity and similarity of geological features to Havilah Resources' Kalkaroo and Portia copper/gold deposits.

Since completion of the historical review, the extracted data is being utilised to further refine the geophysical survey target areas for the 2021 exploration season, as well as being incorporated into the ongoing development of the Company's 3D geological models. With each successive phase of data acquisition, these 3D models are instrumental in advancing the exploration potential of the Project.

To unlock this value, Boss' geologists have been in the field completing ground-based, low-cost and non-invasive geophysical surveys within its substantial 2,595km^2, 100%-owned exploration package. Following the completion of the surveys and subsequent interpretation of the results, the Company plans to undertake an exploration drill programs to exploit the identified areas of interest commencing in the December quarter 2021, with the objective of extending Honeymoon's mine life and increasing its production profile by upgrading known JORC Resources outside of the Mining Licence and targeting greenfields exploration areas further from the known resources, and thereby growing the project's NPV and free cashflow.

The Company anticipates the satellite resources to allow both an increase in the overall production profile with minimal disturbance to operations and extend the mine life of the Honeymoon Project. Boss holds high expectations that its exploration activities will continue to deliver increase Resources, The Company has grown the global JORC resource from 16.6Mlbs to 71.6Mlbs (~331% increase) since acquiring Honeymoon in December 2015.

6. METALLURGY AND TESTWORK

An extensive test-work program has been undertaken throughout the various phases of the project to address the technical issues previously identified as contributing factors in the under performance of the operation. These include:

- Leaching - Low uranium tenors in the Pregnant Leach Solution (**PLS**);
- Scaling - Gypsum scaling associated with the high levels of calcium and sulphates in leach liquors;
- Uranium Recovery - The poor suitability of SX for in-situ recovery uranium projects; and
- Product Quality - Organic contamination of the final Uranium Oxide Concentrate (**UOC**).

The program also included test-work to optimise the IX process for the expanded operation. All test-work was carried out at ANSTO in Lucas Heights.

Leaching

A preliminary leaching program was carried out as part of the PFS to test the leaching characteristics of the Honeymoon ore bodies. The program examined the leaching of high and low-clay samples taken from the Jason's deposit, as well as two samples taken from an area adjacent to Wellfield D, part of the of the future FLT area. The test-work included examining the effect of liquor recycle on uranium extraction, the dissolution of calcium, iron and chloride from minerals in the ore, the factors controlling gypsum solubility, and optimisation of the leaching conditions for ore.

The maximum uranium extractions achieved for the four samples varied but were generally high.

Based on the results from the test-work, the optimum conditions were identified to be pH 1.5 and an Oxidation-Reduction Potential (**ORP**) of 450mV. Under these conditions' uranium extractions may be slower, however pyrite oxidation and associated oxidant consumption is minimised. In practice, this would ideally mean maintaining the ORP underground as low as possible whilst still maintaining an effective rate of uranium dissolution. This could potentially by achieved by increasing the total iron concentration, and by maintaining the injection ORP at 400 - 450mV.

The selected leached chemistry is different from that used by Uranium One where a higher pH and lower ORP, without iron addition, with the expectation that acid consumptions and gypsum formation would be minimised. To validate the new leaching approach a comprehensive Field Leach Trial (**FLT**) was undertaken in which two full scale wellfield patterns were operated for 5 months. The primary objectives and key outcomes included:

- Validation of leaching conditions;
- Confirm the proposed calcium leaching and gypsum control measures;
- Confirm the initial leach kinetics and define the initial part of the recovery curve; and
- Assess reagent consumptions.

Scaling – Gypsum Control

Scaling was identified as a critical issue during the previous operation. As such a solution modelling study was undertaken with ANSTO to examine the major factors affecting the formation of gypsum in the leach solution (lixiviant) from the leaching of ore. The objectives of the program were to examine the effects of the main processing parameters on the propensity of gypsum to form in the PLS, and to determine whether changes to the leaching conditions could reduce or eliminate the formation of gypsum. ANSTO also modelled the effect of the following parameters:

- Oxidation-reduction potential (ORP) in mV – $Fe^{2}+/Fe^{3}+$;
- Total iron (Fe) concentration;
- Chloride concentration; and
- Acidity (pH).

The EFS has concentrated on optimising the leach conditions for uranium dissolution while pre-treating the mining formation fluid before mining to reduce the total calcium and chloride load. The optimal lixiviant conditions utilised in the EFS process model were:

- pH 1.4;
- <450 mV ORP;
- Total iron (Fe) =1.5 g/L, with an $Fe^{3}+$ concentration of 0.5 g/L; and
- Chlorides < 8.5 g/L.

To ensure scaling impact on future leach conditions is minimised the Study allows for wellfield conditioning to soften and treat groundwater prior to acidification to reduce the total calcium load in the PLS.

Uranium Recovery

A significant development prior to the FS was the discovery of Strong Base Anion (**SBA**) IX resins as a viable economic alternative to the SX uranium recovery method in Honeymoon leach conditions.

Several laboratory test work campaigns at ANSTO and a pilot plant operated during the FLT confirmed exceptional resin loadings of >25g U_3O_8 per litre of resin could be achieved.

The development of a novel elution regime to cost effectively strip uranium from the resin then allowed a full cycle operating model to be developed. It was identified, however, that the elution process required increased temperature which represented a large portion of the IX operating costs in the FS.

Following the successful demonstration of the exceptional performance of several SBA resins for the extraction of uranium under Honeymoon leach conditions the Company further optimised the IX process to reduce operational costs of the IX circuit following the completion of the FS.

Test-work conducted by ANSTO in 2020 confirmed that the novel two-stage elution process can occur at ambient temperature resulting in significant energy savings[17].

Product Quality – Uranium Precipitation

Demonstration of successful continuous UO_4 precipitation was completed by ANSTO in a mini-plant prior to the FS, on a synthetic mixture of SX strip liquor and IX eluate designed to simulate the FS precipitation feed. Operating in a continuous configuration with solids recycle allowed denser, more spherical particles to be produced, resulting in an improved thickener underflow density, improved solid/liquid separation characteristics and a better packing density.

[17] *Refer to ASX announcement dated 20 August 2020*

Following the removal of SX from the Project development plan ANSTO were engaged to conduct a series of precipitation tests to confirm that reaction conditions for continuous precipitation were still applicable to a 100% IX eluate precipitation feed. Results proved reaction conditions proposed during the FS were appropriate for EFS precipitation chemistry.

By transitioning to an IX only feed for the precipitation circuit, the potential for organic contamination of the UOC product has been completely removed.

7. HYDROGEOLOGY AND WELLFIELD DESIGN

In-situ Recovery

ISR is the preferred method of mining for Honeymoon. ISR is a proven cost effective and environmentally acceptable extraction process, which accounts for approximately 57% world uranium mined, and is used in Australia, USA, Kazakhstan, and Uzbekistan.

The ISR process involves the installation of multiple wells in a specific pattern over the orebody. For each pattern a bore, or well, is drilled in the centre and installed with a borehole pump. This is designated the extractor well. Four to six additional wells are drilled around the extractor to form the injector wells. Each well has PVC casing and includes a slotted screen installed at the depth of the orebody. The length of the screen is specific to cover the thickness of the mineralisation. The casing is cemented in place, isolating the orebody horizon and preventing potential loss of any mining fluids once production has commenced. Pipework is installed to connect the injector and extractor wells to the main processing plant. Additional wellfields are subsequently installed with similar patterns over the rest of the orebody, until the entire deposit is covered.

When mining is initiated, a leaching fluid (the lixiviant) is pumped into the orebody through the injector wells. The lixiviant moves through the ore within that horizon, dissolving the uranium mineralisation at its origin (i.e. “in situ”) and producing a uranium-rich fluid that is then pumped to the surface through the extractor wells. The pipelines installed at surface transport the pregnant, uranium-rich lixiviant from the wellfields to the processing plant, where the uranium is extracted until the solution is barren, i.e. no longer rich in uranium. The uranium is recovered through a precipitation circuit to produce U_3O_8 and the barren liquor is regenerated with acid and oxidants before it is recycled back to the wellfield to repeat the dissolution process.

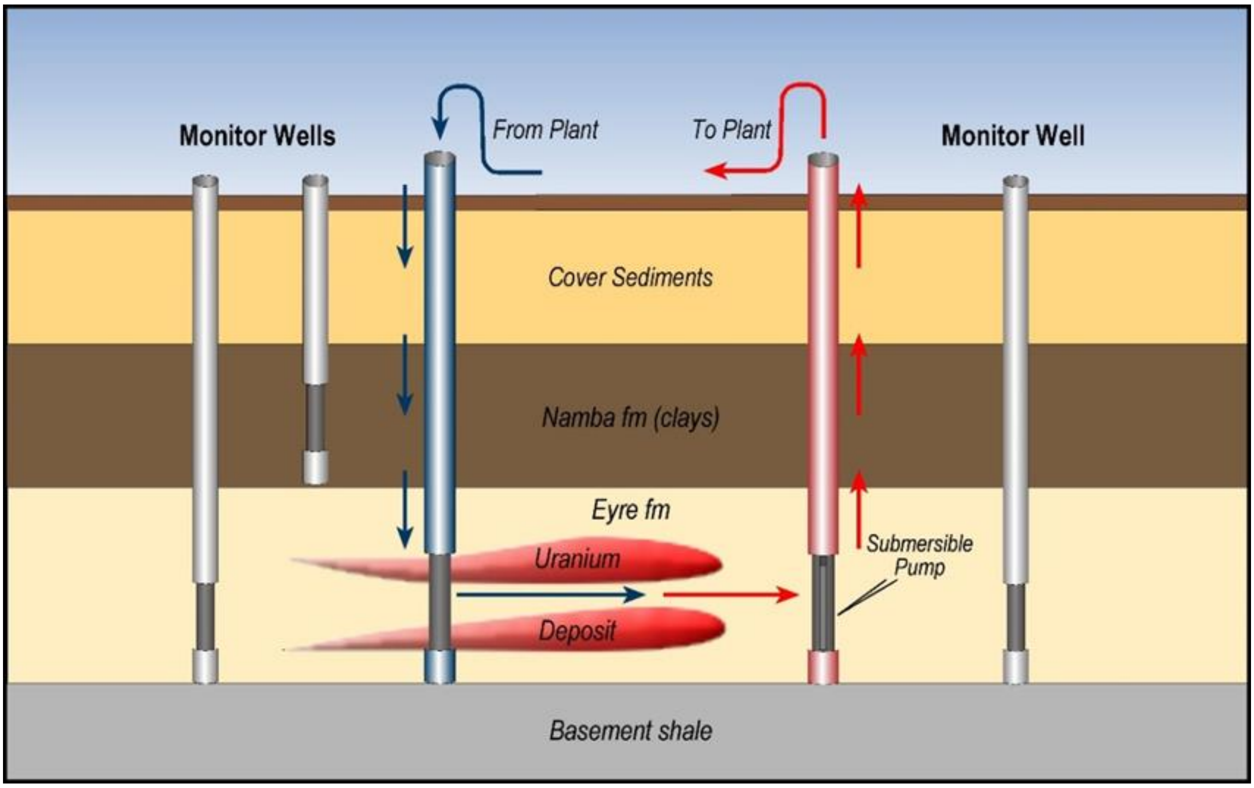

Figure 5: *Honeymoon In-situ Recovery Schematic*

Wellfield Design

The wellfield schedule was designed to meet specific economic criteria within the production plan specified for the EFS.

The production plan targets a maximum uranium feed to the plant of 1.22Mlb/annum for the Start-up phase and 2.45Mlb/annum from year 3 onwards until the resource is depleted (i.e. after Ramp-up phase).

The economic criterion prompted a wellfield design comprising a well spacing of 16 extraction wells and 25 injection wells in a wellfield with an extent of 62,500m^2. This is nominally a 5-spot well pattern array with a 45m well spacing, although other configurations such as line-drive or alternating line drive are equally acceptable, depending on the specific ore layout at each wellfield. Mineralisation that fulfils the economic conditions have been defined as meeting the following:

- Minimum average grade of 400 ppm U_3O_8 for any mineralised interval;
- Minimum grade-thickness (**GT**) accumulation of 1,800 m.ppm for a single mining horizon; and
- Subsequent mining horizons can support a lower GT of 500 m.ppm as the wellfield development capital cost can be spread over multiple horizons.

Wellfield Planning and Production Scheduling

Wellfields are generally planned to target the Measured and Indicated Resource defined in HRA's block model in the early stages of production.

Table 8: *Resources under leach*

	Resource Under Leach (Mlbs)					
Orebody	**Total**	**Measured**	**Indicated**	**Inferred**	**Unclassified**	**Wellfields**
Horizon 1	22.1	6.8	11.5	3.5	0.4	29
Horizon 2	5.7	0.7	3.4	1.5	0.1	18
Horizon 3	5.9	-	2.9	2.0	1.1	15
Total	**34**	**7.5**	**17.7**	**7.0**	**1.6**	**62**

The wellfields are generally planned to address the Measured and Indicated Resource defined in the block model for the early stages of production. However, ISR mining is not selective, and some lower confidence material described as Inferred and Un-classified is enclosed within the wellfield extent and screened interval. This material is reported in the production schedule but is identified separately. It is not possible to stockpile lower confidence material and report a reserve for the non-stockpiled material as is often done in conventional mine planning.

A forecast production rate has been defined to underpin the production schedule. The forecast production rate takes the form of percentage recovery per pore volume exchange (**PVE**) from a wellfield. The forecast production rate was developed for the Honeymoon deposit based on:

- Historic production by Uranium One from Wellfields A, B and C; and
- Leaching performance achieved using the optimised lixiviant defined during the FLT conducted in 2017.

The forecast production profile for the production schedule developed for the EFS comprises 70% resource recovery over 70 PVE. This is an average leaching rate of 1% resource recovery per PVE.

A wellfield schedule for the EFS was developed for the scenario outlined in Table 9.

Table 9: *Flow rate and production constraints*

Year	Max Flow Rate (L/s)	Max Production (Mlb/annum)
Year 1	278	0.85
Year 2	555	1.70
Year 3 onwards	833	2.45

Each wellfield is operated for up to 21 months which equates to 70 PVE. Three months are incorporated in the schedule between wellfields to allow time for recompletion of wells, reconfiguration of the wellhouse and piping, and preconditioning of the orebody with lixiviant for 3 PVE.

Wellfields were scheduled to the following constraints:

- Achieve the production schedule;
- Stay within plant flow constraints;
- Recover lower horizons first;
- Recover mineralisation delineated to Measured and Indicated confidence early in the schedule;
- Recover material within the current mining lease early in the schedule; and
- Minimise the number of wellfields online at one time to minimise capital cost on wellhouse infrastructure.

HRA's production plan meets the production target for the first 8 years. From year 9, the production target can no longer be reached due to the lack of remaining medium to high grade wellfields.

Production from inferred and unclassified resources does not exceed 7% of annual production until year 5. At the end of year 11, the total production from such resources is 24.7%. The LOM is 11 years with 21.81Mlb U_3O_8 produced from the wellfields.

The previous Uranium One operation averaged a 53 ppm U_3O_8 head grade vs the SX plant design capacity of 75ppm. Boss has demonstrated improved leach conditions through its Field Leach Trial but has assumed a conservative average head grade for production modelling of 47 ppm U_3O_8 over the LOM.

Table 10: *Production Schedule for EFS*

		Production (Mlbs)	
Year	**TOTAL (Mlbs)**	**Measured & Indicated**	**Inferred & Unclassified**
1	**0.85**	0.85	-
2	**1.63**	1.56	0.07
3	**2.45**	2.34	0.11
4	**2.45**	2.28	0.17
5	**2.33**	1.69	0.64
6	**2.40**	1.70	0.70
7	**2.43**	1.72	0.71
8	**2.40**	1.49	0.91
9	**2.10**	1.08	1.02
10	**1.70**	1.07	0.63
11	**1.07**	0.64	0.43
TOTAL	**21.81**	**16.42**	**5.39**

8. PROCESS PLANT

The existing Honeymoon processing facility will be re-developed using IX as the only uranium recovery technology in two stages to match the wellfield development schedule. The Start-up phase will produce 1.63Mlb/annum in Year 2, with the Ramp-up phase increasing production to the nameplate capacity of 2.45Mlb/annum in Year 3.

The Start-up phase works include replacing the existing SX processing facility with three NIMCIX trains. Additionally, various modifications will be made to improve performance in the leach liquor, precipitation, drying & packaging circuits to enable the production of U_3O_8 by replacing the existing vacuum dryers with a calciner kiln.

In the Ramp-up phase, production will increase to 2.45Mlb/annum with the installation of a duplicate IX facility that will operate in parallel with the Start-up IX facility.

In addition to the stages detailed above there will be capital projects executed throughout the LOM including:

- Expanding the number of wellfields in operation with additional wellhouses, pumps, equipment and supporting infrastructure;
- Extension of the pipelines and power supply for new wellfields along the Brooks Dam and East Kalkaroo deposit; and
- Evaluation of elution, precipitation, drying and packaging capacity to process resin transported from satellite IX plants designed to increase total production capacity to beyond 3Mlb/annum in line with the Company's export permit limit.

Start-up Phase – SX Plant Replacement

The existing SX processing facility will be replaced with NIMCIX. Several process plant modifications will occur to resolve processing issues that were identified from the original operational period.

The major upgrades and modifications include:

- Upgrading the existing Barren Leach Solution (**BLS**) pumps to boost the feed pressure to the injection wells to improve in-situ recovery performance. Install two additional pumps in advance of the ramp-up phase;
- Upgrading the existing PLS pumps for a higher flow, capable of processing 1,560 m^3/hr of PLS. Install two additional pumps in advance for the ramp-up phase;
- Install three NIMCIX adsorption columns and three smaller NIMCIX elution columns;
- Install two linear screens to capture resin that may be contained in the barren liquor;
- Install three linear screens to wash the converted resin before elution;
- Install one resin trap for resin that may be contained in the concentrated eluate solution;
- Install three adsorption (loaded) resin transfer vessels and three elution (stripped) resin transfer vessels;
- Install one resin regeneration vessel;
- Install one fresh resin hopper;
- Install a sodium chloride mixing and distribution system for use in IX elution;
- Provide solution storage tanks;
- Upgrade reagent mixing and distribution;
- Install additional sulphuric acid and hydrogen peroxide tanks;
- Install a new additional reverse osmosis (**RO**) plant to meet the IX clean water demand;
- Conversion of the batch precipitation tanks to continuous operation to meet the residence time requirements of the Ramp-up phase;
- Reconfigure the Uranium Precipitation Thickener Underflow Pump discharge piping to enable recycling of thickener underflow to the precipitation feed for seeding to promote crystal growth;
- Remove the existing vacuum dryers and supporting equipment and install a new yellowcake dewatering centrifuge, electrical kiln and improved off gas system within the existing building. The drying system will be capable of meeting the Ramp-up phase demand;
- Install a new ferric sulphate storage and dosing system using the redundant sodium chlorate system;
- Install a new containerised RO plant to produce potable water;
- Relocation and refurbishment of the liquid disposal pump;
- Modify the existing groundwater raffinate treatment plant; and
- Development of a new wellfield in accordance with the production schedule.

The NIMCIX adsorption columns will operate in parallel to adsorb uranium from the PLS solution onto the resin. The loaded resin will be eluted using a novel two-step process. The converted resin will be transferred to the NIMCIX elution columns where the resin will be eluted to recover the uranium to a low volume, concentrated eluate. This eluate reports to the existing precipitation, drying and packaging systems. Allowance has been made for regeneration of resin periodically in a separate vessel, to control the build-up of silica on the resin.

Ramp-up Phase – IX Expansion

The Ramp-up phase will supplement the commissioned IX circuit with a second parallel IX circuit and associated infrastructure. The new facility will process the additional PLS generated from the wellfields, increasing production to a nameplate capacity of 2.45Mlb/annum. The additional facilities required for the ramp-up phase include:

- Install three parallel trains of NIMCIX adsorption and elution columns and supporting infrastructure capable of processing 1,560m^3/hr of PLS;
- Install additional sulphuric acid and hydrogen peroxide tanks;
- Upgrade reagent dosing and water distribution pumps;
- Install additional lime and sodium carbonate circuits; and
- Install an additional WTP dedicated to wellfield conditioning (i.e. to soften groundwater).

The Ramp-up IX circuit will mirror the start-up NIMCIX circuit.

9. INFRASTRUCTURE

Figure 6: *Existing Honeymoon process plant and infrastructure*

The infrastructure requirements for the Project comprise of the key items listed below.

Power

Power supply for the existing Honeymoon site is via an overhead transmission line from the national electrical grid at Broken Hill and Cockburn. The line and switch gear will be upgraded for the expanded operation.

As part of Ramp-up and during continued operations, additional wellfields will be supplied via an extension of the 11kV distribution system. This will require installation of ground mounted switchgear and cables. This configuration will allow isolation of entire wellhouses and provides a relatively inexpensive means of further extension in the future.

Emergency power to the Process Plant, Camp and Offices will be provided by the existing 400 kVA generator sets. An additional 400 kVA generator set will be installed to provide emergency power to the new Process Plant areas.

Access

The existing airstrip at the Honeymoon site is capable of landing light planes and will service the operation. Access to the airstrip is via a dedicated access road from the village. The airstrip is in serviceable condition, requiring only refurbishment of the lighting system as part of the Start-up works.

The existing site fencing, including the high security plant fencing is in good condition. No additional fencing is required.

Water

Raw water for the operation will be obtained from the existing ground water bore-field and infrastructure.

The existing WTP will be refurbished for Start-up. Following gypsum and softening precipitation, overflow from the softening precipitate clarifier will report to the existing RO plant.

Potable water for human consumption will be produced by a new containerised RO plant fed from the raw water tank located at the plant site and reticulated around the site as required.

Waste Management

Waste liquid will be collected in the liquid disposal pond and disposed of via the existing liquid disposal wells. The existing disposal pump and pipeline will be relocated and refurbished as part of the Start-up works.

The solids deposited in the gypsum ponds will accumulate over time and once the design capacity is reached, the pond will be capped and made environmentally safe. Anew gypsum pond will be installed for Start-up with a second pond to be built ready for Ramp-up. The two ponds will alternate, with one drying out while the other is filled.

Fuel Storage

Diesel will be stored on site in an existing self-bunded 60kL diesel storage tank with unloading and dispensing facilities.

Liquefied petroleum gas will be stored on site in an existing bullet tank.

Camp

The existing 150 room camp at Honeymoon will be utilised for all stages of the operation. Inspection and refurbishment of the accommodation, dry mess/kitchen, wet mess, gym, ablutions and laundry units will be completed early in the Start-up execution to return the camp to a habitable condition prior to the commencement of site works. An additional laundry unit and a new containerised refrigeration unit will be installed.

Wastewater from the camp and the plant ablutions will report to the existing sewage treatment plant.

Buildings

Administration functions will be divided between the Boss head office and the Honeymoon site. Site-based roles will be located in the existing administration facilities, which consist of the following:

- Administration office complex with offices for management, metallurgy, geology, hydrogeology, production, operations, engineering, maintenance, HSEC and other personnel;
- Store room;
- First aid building;
- Laboratory;
- Ablutions, change houses and crib facilities;
- Plant control room; and
- Final product building control room, clean rooms and contaminated rooms.

Inspection and refurbishment of these building will be completed in conjunction with the accommodation camp refurbishment in Start-up.

The maintenance workshops will undertake general maintenance of the plant and conduct minor servicing of mobile equipment fleet. The existing steel framed and clad workshops at the Honeymoon site include:

- Main combined workshop and stores building;
- Clean workshop and stores building; and
- Warehouse for storage of controlled area equipment.

All of these buildings are in a serviceable condition and do not required refurbishment.

Laboratory

The on-site laboratory will provide several services including:

- Solution and resin assays for metallurgical accounting and control;
- Yellowcake product quality control including moisture testing and drum assays; and
- Environmental and water testing.

The existing laboratory will be refurbished and recommissioned as part of the Start-up works.

Mobile Fleet

Mobile vehicle and equipment plant requirements have been assessed for operation and a combination of refurbishment, servicing and purchasing of new vehicles has been costed for the project.

Security and Communications

The existing security system at Honeymoon consists of an access control system, CCTV system and associated infrastructure. The access system will be refurbished and recommissioned with updated software. The CCTV system will be upgraded with new cameras, video management system and servers.

The existing communications infrastructure will be upgraded to meet the demands during construction and operation. The upgraded booster towers will include new repeaters, solar packs, splitters, cables and a remote monitoring system.

10. PROJECT IMPLEMENTATION

A detailed project execution plan (**PEP**), based on proven project delivery strategies, has been developed for the Project, which includes engineering, procurement, construction, commissioning and operational ramp-up.

The Project capital cost estimate has been developed on the basis that the process plant, wellfields and infrastructure areas of the project are executed using an engineering, procurement and construction management (**EPCM**) approach. This contract strategy will allow Boss to maintain control of the budget, schedule and quality through all stages of project development.

Implementation schedules have been developed for each stage based on the following:

- Commencement of the project phases will occur in line with the timing presented in the Start-up and Ramp-up implementation schedules;
- Wellfields will be constructed, commissioned and conditioned ready for the commencement of production;
- Key equipment delivery and installation will form the critical path for both stages;

- Auxiliary infrastructure packages such as bulk earthworks, access road refurbishment, HV power supply upgrade, camp, building, office and laboratory refurbishment will be managed directly by the Owners team;
- Both stages will be undertaken by a single EPCM contractor to enable synergy of resources between both stages; and
- Construction personnel will work a four weeks-on, one week-off roster.

Start-up Schedule

The Start-up schedule from award through to practical completion is expected to be 61 weeks with the following timing for key design, procurement and construction activities as indicated on the implementation schedule:

- EPCM engineer award and commencement of design — Week 1
- NIMCIX procurement — Week 1
- Commencement of major equipment procurement — Week 7
- Commencement of site works contract tendering — Week 10
- Site establishment — Week 16
- Accommodation village and building refurbishment — Week 16
- Commencement of off-site fabrication — Week 17
- Mobilise earthworks contractor — Week 18
- Mobilise construction supervision to site — Week 19
- Mobilise civil contractor — Week 19
- Concrete works commence — Week 21
- Mobilise SMP contractor — Week 27
- Refurbishment works commence — Week 34
- Mobilise E&I contractor — Week 37
- Commence WTP & RO pre-commissioning — Week 49
- Wellfield Commissioning – Start of Mining — Week 50
- Commence IX pre-commissioning — Week 57
- Practical completion — Week 57
- Commence commissioning — Week 58
- Commence production — Week 62

The critical path for the Start-up phase is the process design followed by the NIMCIX procurement, manufacture, delivery and installation, RO plant, structural steel, piping, and electrical and process control installation works, pre-commissioning and commissioning.

Boss intends to address the process design after completion of the EFS and before the financial investment decision is made. Opportunities exist through early vendor engagement to address long lead items such as the NIMCIX equipment and RO supply. The PEP and schedule will be revised early in detailed design.

Ramp-up Schedule

The implementation of Ramp-up has been scheduled in accordance with the production schedule to ensure operational readiness in Month 15 following the commencement of the Start-up production.

The Ramp-up project schedule from award to practical completion (first production) is expected to be 74 weeks with the following timing for key design, procurement and construction activities as indicated on the implementation schedule:

• Confirm procurement	Week 1
• Commencement of WTP clarifier procurement	Week 2
• Commencement of NIMCIX column & other equipment procurement	Week 24
• Commencement of off-site fabrication	Week 29
• Mobilise civil contractor	Week 46
• Concrete works commence	Week 49
• Mobilise SMP contractor	Week 56
• Mobilise E&I contractor	Week 59
• Commence pre-commissioning	Week 71
• Practical completion	Week 73
• Commence commissioning	Week 73
• Commence production	Week 75

The critical path for Ramp-up is the procurement, manufacture, delivery, site lamination and installation of the remaining NIMCIX equipment, the new WTP, piping installation works and commissioning. An early vendor engagement strategy may be employed to reduce this delivery schedule.

11. ENVIRONMENTAL AND PERMITTING

Honeymoon is an existing, fully permitted operation currently in care and maintenance. A mining lease for the operation is in place and a current operational Program for Environmental Protection and Rehabilitation (**PEPR**) has been approved by the Department for Energy and Resources (**DEM**).

The Native Title Agreements have been signed and mining at Honeymoon is endorsed by the local indigenous communities.

In May 2021, Boss completed a Permit Review which concluded the Company has all permits required by Federal and State Government authorities to mine, process, store, transport and export uranium from Honeymoon. These include the permits that will incorporate the IX columns in the processing plant as contained in the EFS. The Company also confirmed that the permits needed to increase nameplate production at Honeymoon to 2.45Mlb/annum are in place and in good order.

The comprehensive Permit Review assessed all the regulatory approvals currently held for Honeymoon against those necessary to mine and process UOC, transport UOC to port and export the UOC to international markets.

The review found that all necessary approvals under South Australian state and Australian Federal legislation are held and in good standing, enabling an immediate restart of the Honeymoon processing facility.

The review also found that the planned IX expansion and process modifications can be incorporated into the existing State and Federal approvals through a series of standard requirements, with no new primary approvals required. Revisions to existing regulatory approval documents will take into account alterations to the processing plant and the operational footprint. This would involve modifications to the current PEPR and the operational Radiation Management Plan (**RMP**)and Radioactive Waste Management Plan (**RWMP**).

Key South Australian approvals held by Honeymoon include a current Mineral Lease and a supporting PEPR, relevant EPA licences for Uranium Mining and Processing, with a supporting RMP and RWMP.

The project also holds an approved Transport Management plan for the transfer of UOC from the facility to Port Adelaide.

Federal permits to Possess Nuclear Material and to ensure the security of UOC are also held by the project. Federal Export permissions for UOC are also in place and have recently been renewed by the Federal Department of Industry Science, Energy and Resources.

With the existing permitting in place production can commence at Honeymoon with a short lead time.

The planned expansion to 2.45Mlb/annum within the existing mining lease will require an update to the PEPR with associated baseline studies and the RMP and RWMP. The Company is currently undertaking the necessary baseline studies, assessments, management plans so that the existing plant can be expanded to 2.45Mlb/annum based on the deposits contained within ML6109.

12. CAPITAL COST ESTIMATE

The EFS was based on revised economic assumptions reflecting continued improvement in the outlook for uranium supply-demand fundamentals and revised capital and operating estimates. Specifically, the capital cost update captures savings made in relation to the cold elution circuit changes and also incorporates the upfront inclusion of the NIMCIX columns that drive operating cost efficiency. The capital cost estimates developed for the EFS are based upon an EPCM approach for the process plant and infrastructure. The Owner's Team will oversee the EPCM contract and directly manage the auxiliary packages such as bulk earthworks, access road refurbishment, camp, building, office and laboratory refurbishment.

The estimate includes all the necessary costs associated with design engineering and drafting, procurement, construction and construction management, refurbishment and commissioning of the process facility and associated infrastructure, wellfield establishment, first fills of plant reagents and consumables, spare parts, mobile equipment, pre-production Owners costs and working capital required to design, procure, construct and commission all facilities required to establish the Project.

The estimate is based upon preliminary engineering, quantity take-offs, budget price quotations for major equipment and bulk commodities. Unit rates for installation were based on market enquiries and benchmarked to those achieved recently on similar projects undertaken in the Australian minerals processing industry. The estimates are presented in Australian dollars with an overall contingency of 8% and an accuracy level of ± 10-15%.

The capital cost estimates for Start-up and Ramp-up are summarised in Table 11.

Table 11: *Capital cost estimate (including contingencies)*

Facility	Re-Start (A$M)	Additional IX (A$M)
Direct Costs		
Earthworks	3.29	-
Civil works	2.89	0.33
Mechanical equipment	21.11	14.86
Refurbishment	2.16	-
Platework	0.79	0.22
Structural steel	2.81	-
Electrical installations	11.76	0.56
Piping	4.52	0.28
Buildings	1.79	-
Construction equipment	4.45	0.84
Total Direct Costs	**55.58**	**17.09**
Indirect Costs		
Temporary construction facilities	0.72	0.18
Supervision and Construction Management	3.32	1.31
Project and procurement management	2.38	1.17
Engineering design	6.48	-
Vendor Commissioning	0.30	0.03
Commissioning	1.73	0.43
EPCM Indirect Costs	0.62	0.22
Initial fills	5.88	5.62
Insurance Spares	0.47	0.26
Commissioning Spares	0.15	0.13
Total Indirect Costs	**22.05**	**9.34**
Owners Costs	**2.62**	**-**
Total Project Costs	**80.25**	**26.43**
USD$ (AUD: USD 0.75)	**60.19**	**19.82**

Contingency

Total Start-up and Ramp-up capital costs have been estimated at A$106.7 million (including contingency of A$7.8 million or 8%). In addition, Boss has incorporated an additional A$5.3 million contingency as part of its financial analysis. Total EFS capital cost contingency amounts to A$13.1m.

13. OPERATING COST ESTIMATE

Results of the EFS show the following key financial metrics:

- Cash Costs of US$18.46/lb (A$24.62/lb) which includes all mining costs, onsite processing costs, onsite general and administration costs and logistics costs;
- AISC of US$25.62/lb (A$34.16/lb) which includes C1 Cash Costs plus royalties and sustaining capital expenditure; and
- AIC of US$31.86/lb (A$42.48) which includes AISC plus upfront and deferred capital expenditure.

Cash costs were developed largely from first principles based on the test-work, steady state mass balances produced by the Owner's Team, process design criteria, mechanical equipment list, the capital cost and the base case production schedule. Some historical cost data was utilised to generate allowances for existing areas of plant and general costs.

Cash costs were broken down into their fixed and variable components to accommodate cash flow scheduling. Variable costs were linked to uranium production or PLS flow rate.

An 11-year LOM has been considered in the development of the cash costs. The estimates are presented in Australian dollars with an accuracy level of -10/+15%. The LOM base case cash costs are summarised in Table 12.

The annual average cash costs over the LOM of the Project are estimated at A$48.82 million per annum or A$24.62/lb of U_3O_8 produced.

Table 12: *Annual cash costs summary*

	Annual Cash Cost	
	(A$M/annum)	(A$/lb U_3O_8)
Labour	13.99	7.06
Power	7.45	3.76
Reagents and consumables	17.47	8.81
Maintenance	5.21	2.63
Laboratory	0.56	0.28
General and Administration	4.14	2.09
Total	**48.82**	**24.62**
USD$ (AUD: USD 0.75)	**36.62**	**18.46**

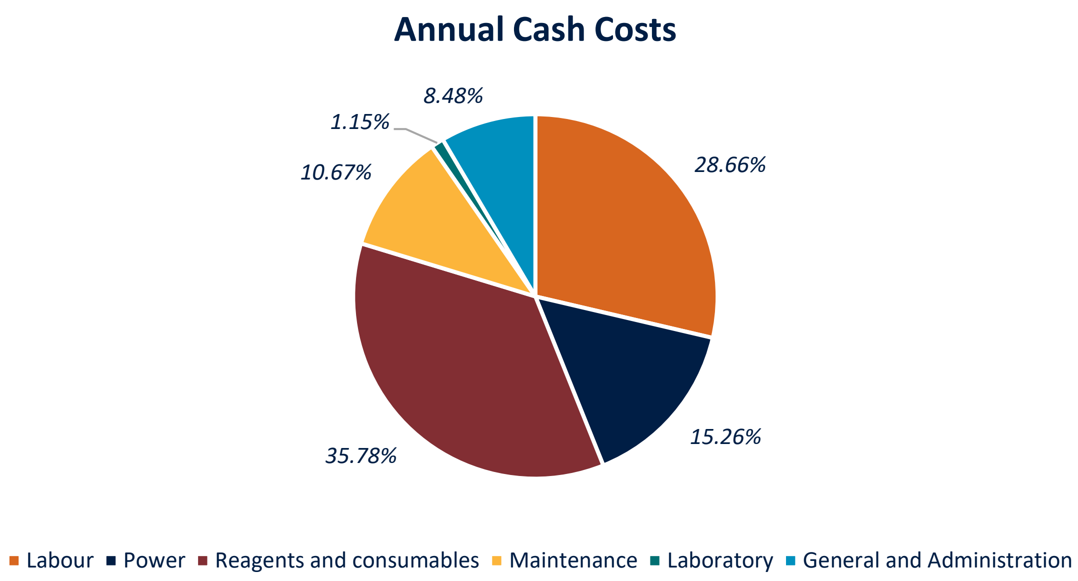

Figure 7: *Project annual cash costs*

Wellfield

The development, commissioning and operation of wellfields will be required to achieve the EFS production schedule. Table 13 shows the wellfield operating cost summary over LOM.

Table 13: *Wellfield operating cost summary*

	Wellfield Cash Costs	
	(A$M/annum)	(A$/lb U_3O_8)
Labour	1.48	0.75
Power	2.91	1.47
Reagents and consumables	0.09	0.04
Maintenance	0.58	0.29
General and Administration	0.13	0.06
Total	**5.19**	**2.62**

Process plant

The average annual cash costs for the process plant are estimated at A$43.63 million per annum or A$22.01/lb of U_3O_8 produced. The operating cost by category is summarised in Table 14.

Table 14: *Process Plant operating cost summary*

	Process Plant Cash Cost	
	(A$M/annum)	(A$/lb U_3O_8)
Labour	12.51	6.31
Power	4.54	2.29
Reagents and consumables	17.38	8.77
Maintenance	4.63	2.33
Laboratory	0.56	0.28
General and Administration	4.02	2.03
Total	**43.63**	**22.01**

Figure 8 shows the Ramp-up profile of the Honeymoon process plant to achieve the design volumetric treatment rate.

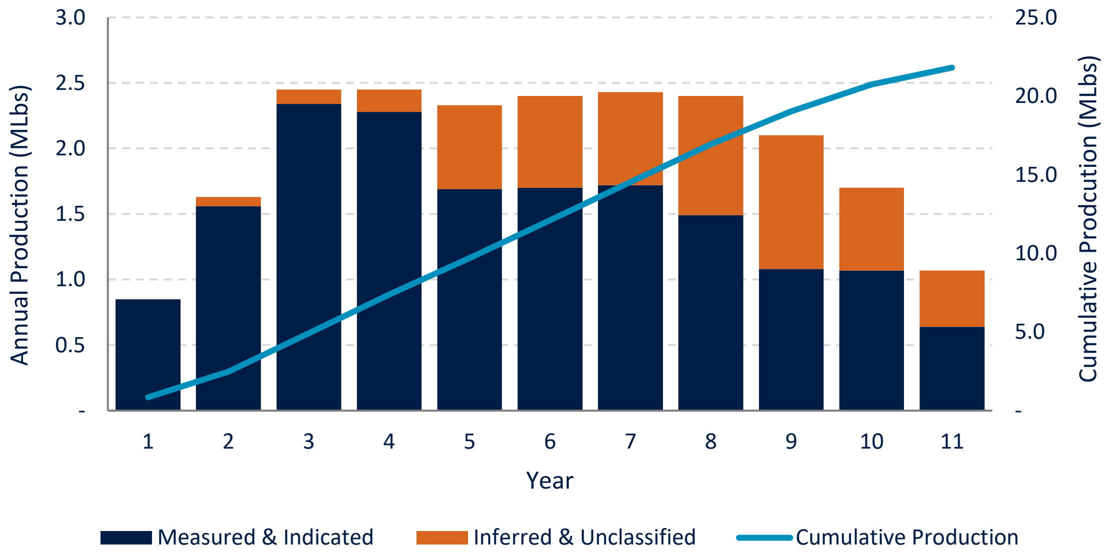

***Figure 8:** Annual production over LOM*

14. SUSTAINING AND DEFERRED CAPITAL

The sustaining and deferred capital cost estimates capture capital expenditure have been developed to account for the funding required over the LOM to replace items of plant that have reached their maintainable and useful life, or planned expenditure to modify the plant as necessary to sustain operations at the rated capacity.

The majority of sustained and deferred capital expenditure relates to the well-fields.

Sustaining Capital

A summary of the sustaining capital estimates, which have been estimated in Australian dollars with an accuracy level of -10/+15% and including a contingency of 10%, is summarised in Table 15.

***Table 15:** Sustaining capital cost summary*

Sustaining Capital Project	A$M
General Sustaining Capital	8.31
Wellfield Sustaining Capital	3.70
Waste Water Bore	0.57
Road and Airstrip Re-sheeting	1.06
Gypsum Pond	1.04
Refurbished Wellfield	1.93
Relocated Wellfield	28.31
Existing Wellfield Re-screening	16.93
New Wellfield Drilling Casing and Screening	35.57
Total (LOM)	**97.42**
USD$ (AUD: USD 0.75)	**73.07**

Sustaining capital costs are applied throughout the LOM in accordance with the base case production schedule. The annual sustaining capital costs are summarised in Table 16.

Table 16: *Annual sustaining capital cost summary*

Period	General Sustaining Capital (A$M)	Wellfield Sustaining Capital (A$M)	Waste Water Bore (A$M)	Road And Airstrip Re-Sheeting (A$M)	Additional Gypsum Ponds (A$M)	Refurbished Wellfield Equipment and Infrastructure (A$M)	Relocated Wellfield Equipment and Infrastructure (A$M)	Existing Wellfield Re-Screening (A$M)	New Wellfield Drilling, Casing and Screening (A$M)
Year 1	-	0.04	-	-	1.04	-	-	-	5.93
Year 2	0.76	0.18	-	-	-	1.29	-	0.94	-
Year 3	0.94	0.23	-	-	-	0.64	2.02	0.47	2.96
Year 4	0.94	0.23	0.57	-	-	-	3.37	-	8.89
Year 5	0.94	0.33	-	-	-	-	2.02	-	10.38
Year 6	0.94	0.33	-	-	-	-	3.37	0.94	5.93
Year 7	0.94	0.37	-	1.06	-	-	3.37	2.35	-
Year 8	0.95	0.44	-	-	-	-	4.72	5.18	1.48
Year 9	0.95	0.53	-	-	-	-	4.72	3.76	-
Year 10	0.95	0.53	-	-	-	-	4.72	3.29	-
Year 11	-	0.49	-	-	-	-	-	-	-

Deferred Capital

Deferred capital items for the Project include:

- New wellfield equipment supply, installation and commissioning;
- Wellfield header extensions to newly developed wellfields (including the large BLS, PLS headers and smaller ground water headers) as required by the production schedule; and
- An allowance was made for a new XRF to be purchased.

Capital costs for each new wellfield were estimated at $2.09 million.

Deferred capital costs are applied throughout the LOM in accordance with the base case production schedule. The annual deferred capital costs, which have been estimated in Australian dollars with an accuracy level of ± 10-15% and including a contingency of 10%, are summarised in Table 17.

Table 17: *Annual deferred capital cost summary*

Period	New Wellfield Equipment and Infrastructure	Wellfield Header Extension	Laboratory	Ramp-Up	TOTAL
	A$M	A$M	A$M	A$M	A$M
Year 1	8.35	3.91	-	-	**12.26**
Year 2	2.09	-	-	26.43	**28.52**
Year 3	-	2.34	0.50	-	**2.84**
Year 4	2.09	0.81	-	-	**2.90**
Year 5	8.35	1.35	-	-	**9.70**
Year 6	2.09	0.71	-	-	**2.80**
Year 7	-	0.01	-	-	**0.01**
Year 8	8.35	0.01	-	-	**8.36**
Year 9	2.09	-	-	-	**2.09**
Year 10	-	-	-	-	**-**
Year 11	-	-	-	-	**-**
TOTAL	**33.41**	**9.14**	**0.50**	**26.43**	**69.48**

15. MARKET ANALYSIS

Economic Outlook

The uranium market is subject to long cycles and appears to be on the cusp of recovery after a long period of low prices.

On the macroeconomic level, the 2019 World Nuclear Association (**WNA**) Nuclear Fuel Report revised projections upwards for nuclear generating capacity growth for the first time in eight years, following the introduction of more favourable policies in several countries.

The WNA Report's Upper and Reference scenarios show global nuclear power capacities growing in the forward-looking period to 2040, at a faster rate than at any time since 1990. Over this period, nuclear energy generating capacity is expected to increase to 402 GWe, 569 GWe and 776 GWe in the Lower, Reference and Upper Scenarios from the current 373 GWe.

Secondary supplies of uranium are forecast to gradually decrease from the current 14 – 15% of reactor requirements to 4 – 9% in 2040.

It is worth noting that since the 2019 report was completed there have been significant changes to the supply balance brought about by global events.

1. Since 2016, annual primary uranium production has decreased more than 45Mlb/annum due to economic shutdowns and curtailments. Both Cameco and Kazatomprom have reaffirmed their commitment to supply side discipline to protect operating margins. Primary supply continues to decline. The first half of 2021 has seen the final closure, after four decades of operation, of the Ranger mine in Australia and the Cominak mine in Niger, representing a total loss of 7Mlb/annum.
2. The outlook for nuclear power has improved with more nations announcing binding targets for achieving net zero carbon emissions. China announced plans to reach net zero emissions by 2060 and the 14th 5-year plan sees nuclear capacity rising to 70GWe by 2025. The EU, USA, Canada, Japan, South Korea and South Africa have net zero emissions targets for 2050. As the focus has shifted towards carbon reduction, nuclear power is increasingly viewed as essential to any strategy to achieve net neutral emissions. The US is taking steps to support existing and advanced reactors

and reactor life extensions have been recently announced. The prevailing environment is more favourable to reactor development than at any time post Fukushima.

3. The Covid-19 Pandemic has seen mines closed for periods of time and development work curtailed. Primary production in 2020 was at its lowest level since 2016.
4. Inventories have fallen more rapidly than envisaged in the 2019 WNA report as utilities deferred procurement due to trade related uncertainties in 2019 and 2020. Covid-19 related shutdowns and additional producer purchasing, to replace production to meet contracts, has further reduced global inventories. In the first quarter of 2021 inventory drawdown was accelerated by junior miners and funds purchasing over 10Mlbs U_3O_8.

Uranium is not traded on an exchange (in material quantities), like other commodities. Rather, contracts are entered into by buyers and sellers with prices published by independent market consultants (such as UxC LLC and TradeTech). There is no obligation on buyers or sellers to report prices.

The spot price is most often quoted and is currently around US$32.5/lb U_3O_8 while the current long -term price indicator is US$35/lb U_3O_8 implies delivered prices post 2023 in the high $30's for new term contracts. The spot price indicator is relevant to sales of uranium in the near term, while the term price indicator reflects the base price at which transactions for long term delivery could be concluded, at the time the price is published.

Figure 9 shows the historical long-term uranium price indicator and the historical spot price indicator back to 2005.

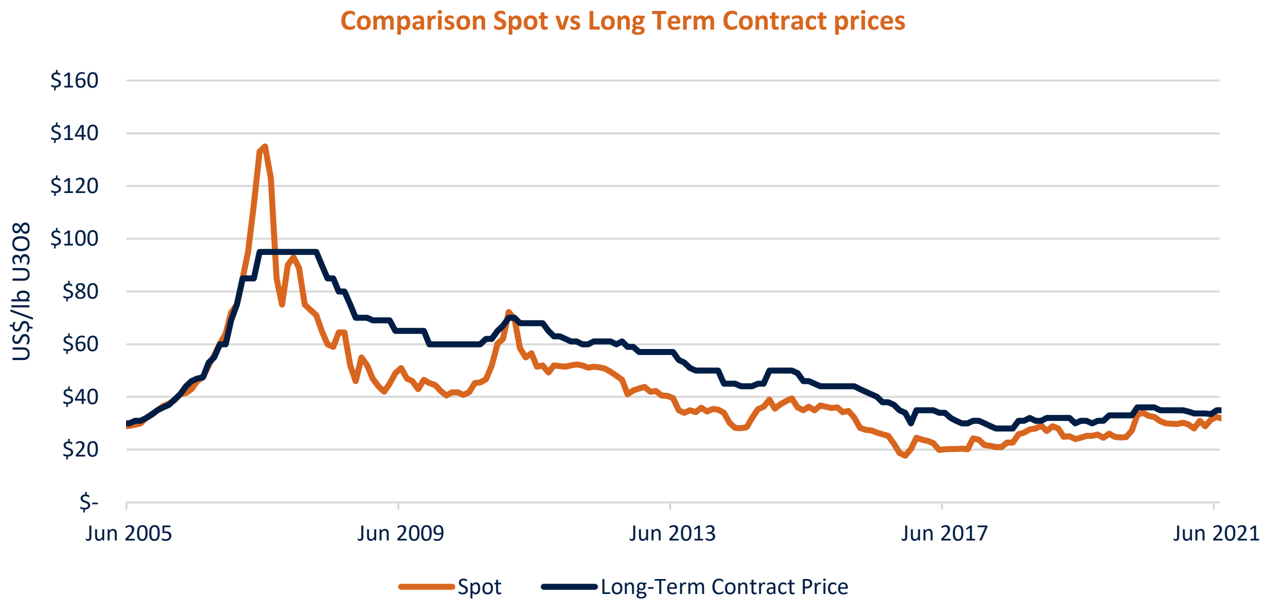

Figure 9: *U_3O_8 long-term contract price and U_3O_8 spot price, sourced from WNA Uranium Markets based on Cameco, UxC and Trade Tech*

Figure 9 shows that uranium sold under a long-term contract is priced at a premium to uranium sold at spot. The premium paid under long-term contract represents the value to the utility of securing a known quantity of uranium at a fixed price for an agreed duration, timing and quantity optionality within a delivery year and is a reflection of the significant cost avoided by the Utility if it were to purchase the same quantity in the spot market and hold it until the delivery years indicated in the long-term contract.

Following the Fukushima incident in early 2011, uranium prices (long-term contract price and spot price) fell dramatically. However, a premium for long-term contract prices over spot prices existed, which has averaged approximately 29%, based on the data presented over the last 15 years.

Figure 9 also shows that the only time over the last 10 years that the long-term contract price and spot price converged was in January 2011 following a sharp increase in the spot price to US$73/lb and this situation existed for only one month until the prices diverged.

Marketing Strategy

In general, utilities will supply their reactors from a mix of inventory, term contracts and open requirements. These uncommitted requirements will be satisfied in the spot market, from inventory or from optionality in existing contracts. The major portion of the supply portfolio, in general, is from term contracts.

Buyers usually purchase uranium either through 'off market' discussions with a small group of selected suppliers or 'Request for Proposals' (**RFP**) which are more formal. For most term contracts, the negotiations are held two to three years before deliveries commence. The short lead time between the decision to mine and first production at Honeymoon gives Boss the ability to enter into current RFP's and respond quickly to changing market conditions.

The marketing strategy for Honeymoon is to build a robust sales portfolio which would cover costs and protect the mine from any future market downturn while retaining sufficient uncommitted supply to take advantage of rising market conditions. Boss will be monitoring the term price and our strategy is to enter into sufficient long-term base escalated contracts to protect against market downside once term prices reach an acceptable level. Once this requirement is met further contracts with different price mechanisms and durations will be layered in to optimise the average sales price in an anticipated rising market.

The WNA report in 2019 envisaged a need for the restart of idled mines and new production from 2023 - 2024. In the interim period, potential supply has declined bringing forward the need for new supply. Production has been progressively curtailed as spot and long-term prices have stagnated at levels that will not support economic production from these mines. Additionally, Covid-19 curtailments have further reduced production. Inventories have been drawn down as producers have purchased uranium to fulfil Utility contracts and as utilities consumed inventories and deferred purchasing during 2019 and 2020. Supply from idled mines and new mines will be needed earlier than forecast, but the disconnect between the need for new production and pricing to incentivise new production, increases the likelihood of production shortfalls and price volatility. Analysts predict that a long-term price in the US$40's/lb will incentivise restarts, whilst a spot price closer to US$60/lb will be needed for most new mines.

Although Boss has used a price of US$60/lb as a base case scenario for its financial analysis, it has also presented the detailed financial outcomes at a U_3O_8 price of US$40/lb and US$80/lb.

As the lead time to bring a new mine to production is significant (seven to 10 years from discovery to commissioning on average) prices will have to rise significantly in 2021/22 if new mines are to be brought on as needed. The longer the price remains low, the more probable a perceived shortfall becomes in the mid 2020's and a potential overshoot in prices before settling at a sustainable level.

Cameco/UxC estimate that cumulative uncovered requirements are about 1.4 billion pounds[18] to the end of 2035 due to a lack of investment, high capex and policy issues the supply response from idled and new mines looks uncertain.

This is an ideal environment for Honeymoon, because it:

- Comparatively lower capital costs (only US$80M) to restart production than to the average cost of new mines; and
- Honeymoon can be brought into production within a year of taking the decision to move forward.

[18] *https://www.cameco.com/invest/markets/supply-demand.*

16. FINANCIAL ANALYSIS

Honeymoon has been evaluated at a project level on a discounted cashflow basis. Key inputs were derived from the EFS, including capital costs, operating costs, financial assumptions and the determined production schedule. The project evaluation date is at the decision to execute, which is 1 January 2022. Table 18 shows the key financial assumptions that were used as the base case in the financial evaluation to determine Project valuation and rates of return.

***Table 18**: Key Financial Assumptions*

Financial Assumption	Unit	Value
Average U_3O_8 Price over LOM	US$	**60/lb U_3O_8**
Foreign Exchange Rate	A$:US$	**0.75**
Discount rate	%	**8%**
Tax rate	%	**30%**
Accumulated Tax Losses	A$M	**A$84.8**
Government Royalty	%	**5%**
Native Title Royalty	%	**1.5%**
Life of Mine (LOM)	Years	**11**

Table 19 shows a summary of the financial outcomes under the base case.

***Table 19:** Summary of EFS Financial Outcomes*

Measure	Unit	A$M	US$M
Uranium Produced (over LOM)	Mlbs	**21.81**	
Gross Revenue (over LOM)	$M	1,705	**1,279**
Free Cash flow (Pre-tax)	$M	774	**580**
Free Cash flow (Post-tax)	$M	567	**425**
EBITDA margin (average over LOM)	%	**62.0%**	
IRR (Pre-tax)	%	**47.1%**	
IRR (Post-tax)	%	**37.2%**	
$NPV_{8\%}$ (Pre-tax)	$M	412	**309**
$NPV_{8\%}$ (Post-tax)	$M	285	**214**
Capital Cost (Ion Exchange)	$M	107	**80**
Cash Costs	$/lb U_3O_8	24.61	**18.46**
AISC	$/lb U_3O_8	34.16	**25.62**
AIC	$/lb U_3O_8	42.48	**31.86**
Total Project Payback (post tax, after first production)	years	**3.5**	

The summary of financial outcomes is based on the U_3O_8 production profile as shown in Figure 11.

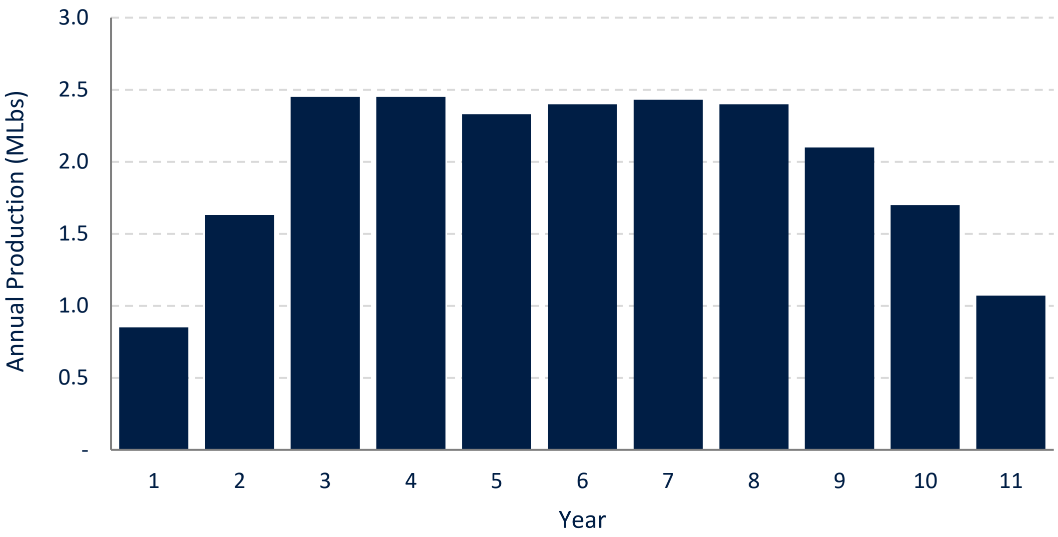

***Figure 11**: U_3O_8 production profile over LOM*

Sensitivity Analysis

Sensitivity was completed on several key inputs to identify areas of potential financial variance. The base case financial analysis was undertaken using a U_3O_8 price of US$60/lb. The Project is highly leveraged to the U_3O_8 price and Table 20 displays the potential financial outcomes at U_3O_8 prices of US$40/lb, US$60/lb and US$80/lb.

***Table 20**: Key Financial Summary over LOM at U_3O_8 prices of US$40/lb, US$60/lb and US$80/lb*

Financial Metric	Unit	US$40/lb		US$60/lb		US$80/lb	
		A$	US$	A$	US$	A$	US$
Revenue	$M	1,139	**854**	1,705	**1,279**	2,272	**1,704**
EBITDA	$M	528	**396**	1,058	**793**	1,588	**1,191**
Free Cash flow (Pre-tax)	$M	244	**183**	774	**580**	1,304	**978**
Free Cash flow (Post-tax)	$M	187	**140**	567	**425**	938	**704**
EBITDA margin	%	**46.4%**		**62.0%**		**69.9%**	
IRR (Pre-tax)	%	**19.2%**		**47.1%**		**69.7%**	
IRR (Post-tax)	%	**15.2%**		**37.2%**		**54.7%**	
$NPV_{8\%}$ (Pre-tax)	$M	94	**71**	412	**309**	729	**547**
$NPV_{8\%}$ (Post-tax)	$M	58	**44**	285	**214**	506	**380**
$NPV_{6\%}$ (Pre-tax)	$M	122	**92**	480	**360**	838	**629**
$NPV_{6\%}$ (Post-tax)	$M	82	**62**	338	**254**	588	**441**
Cash Costs	$/lb	24.61	**18.46**	24.61	**18.46**	24.61	**18.46**
AISC	$/lb	32.47	**24.35**	34.16	**25.62**	35.85	**26.89**
AIC	$/lb	40.79	**30.59**	42.48	**31.86**	44.17	**33.13**
Total Project Payback	Years	**7.0**		**3.5**		**2.7**	

The base case EFS pre-tax NPV is US$309 million (A$412 million) and an IRR of 47.1%. The sensitivity of the Project pre-tax NPV to key input changes with a +/- 20% variation applied is summarised in Figure 12 as is a variation to the discount rate of +/- 2%.

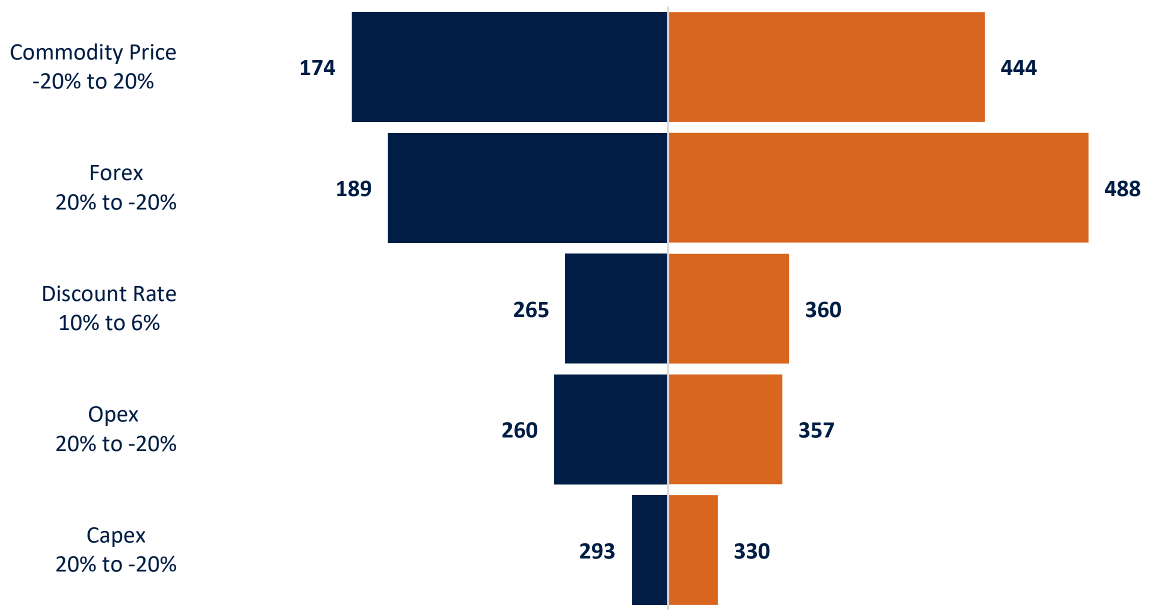

***Figure 12**: Sensitivity analysis on base case NPV of US$309M (US$ Million)*

Figure 13 show the forecast pre-tax net annual cashflows and the cumulative cash balance of the base case estimate.

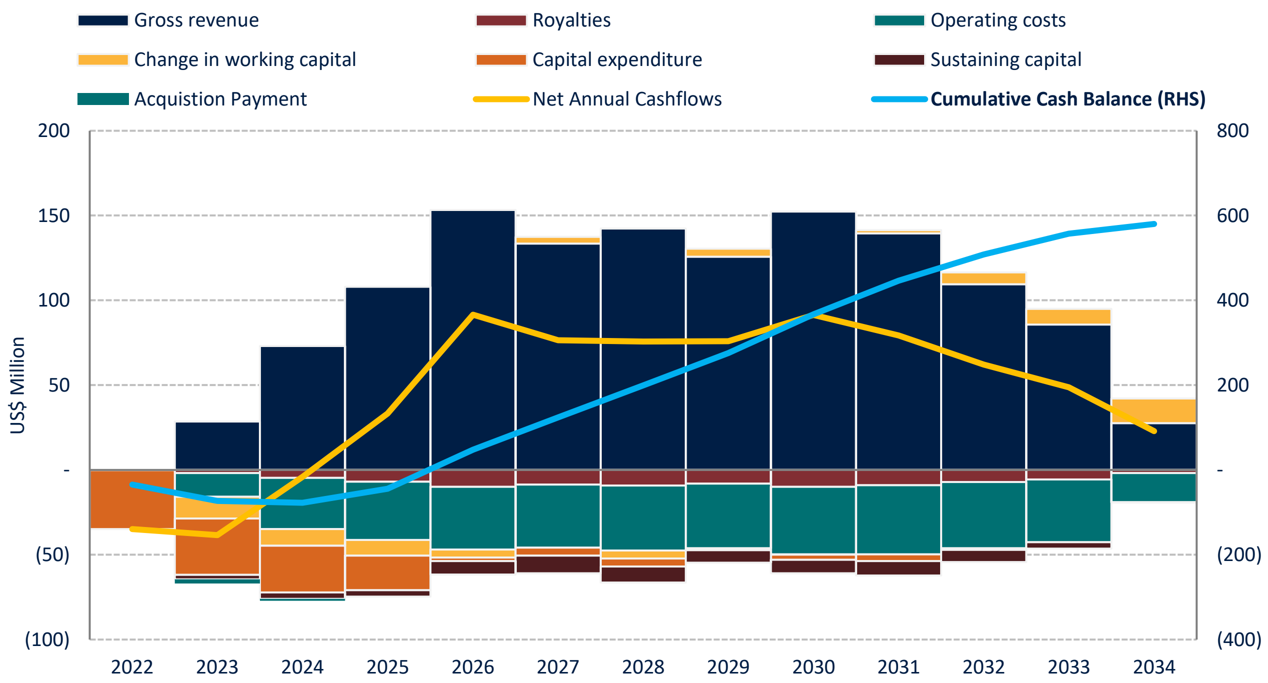

***Figure 13**: Cashflows and Cumulative Cash Balance over LOM (pre-tax) at a U_3O_8 price of US$60/lb*

Figures 14, 15 and 16 show the key financial, return and cost metrics over the LOM at a U_3O_8 prices of US$40/lb, US$50/lb, US$60/lb, US$70/lb and US$80/lb.

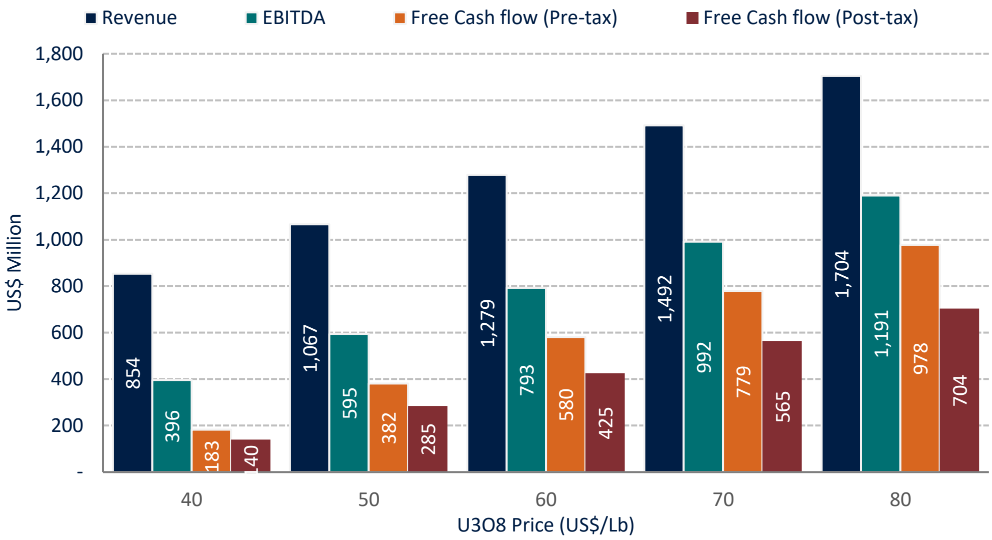

***Figure 14**: Key financial metrics at U_3O_8 prices of US$40/lb, US$50/lb, US$60/lb, US$70/lb and US$80/lb*

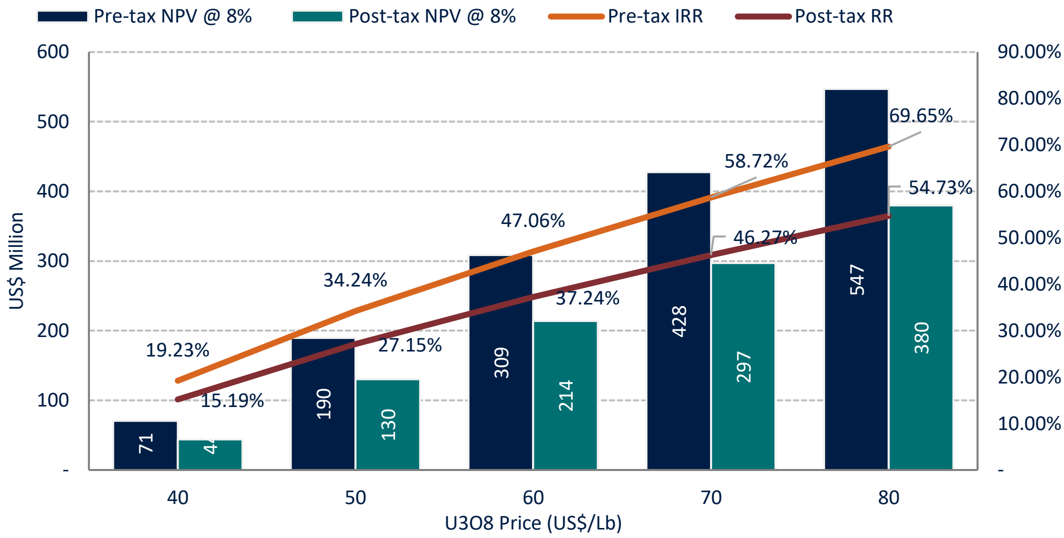

***Figure 15**: Key financial metrics at U_3O_8 prices of US$40/lb, US$50/lb, US$60/lb, US$70/lb and US$80/lb*

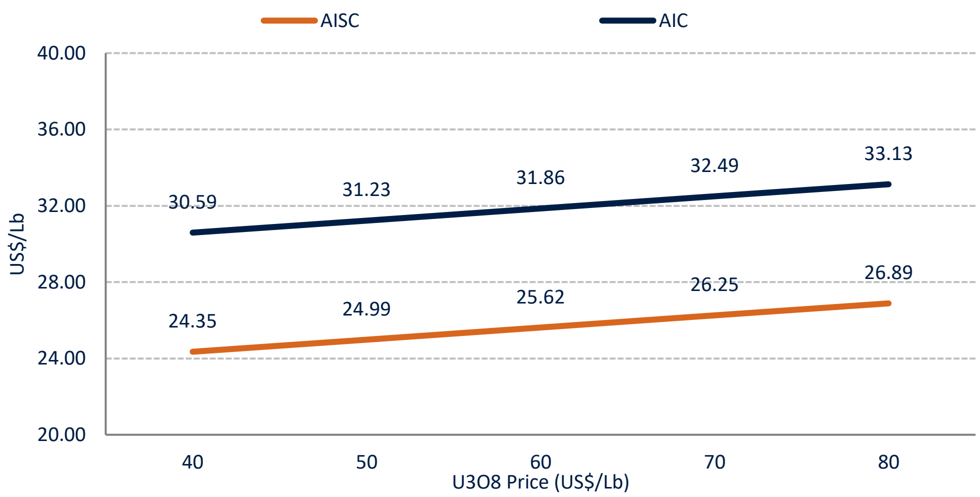

***Figure 16**: Key financial metrics at U_3O_8 prices of US$40/lb, US$50/lb, US$60/lb, US$70/lb and US$80/lb*

17. FUTURE WORK PROGRAMS

The EFS confirms Boss has global first mover advantage as a primary producer in the forthcoming uranium cycle. Aligned with Boss's strategic timetable, the decision to move to production is now purely contingent upon the uranium price rising to ensure a sustainable and profitable mining operation, enabling the company to enter into long-term offtake agreements when prices strengthen, locking in robust margins and substantial free cashflow in the process. Project financing discussions with several global lenders are well advanced and the company is staying very close to fuel buyers and the market in general.

Boss's strategic timetable is underpinned by the fact that the 100%-owned Honeymoon is fully permitted, has an existing plant (in care and maintenance), and associated infrastructure, a large JORC Resource and with this EFS, proven low operating costs among uranium producers worldwide.

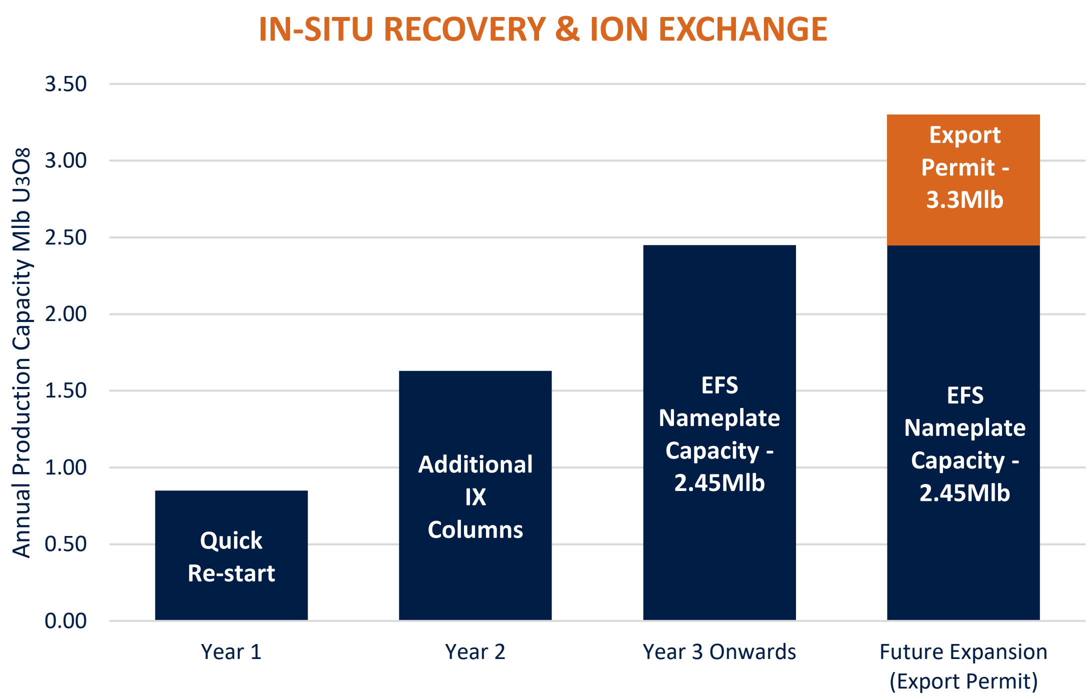

Figure 17: *Stage production approach for the Honeymoon Uranium Project*

Honeymoon Resource Expansion

Importantly, the EFS provides a base case to fast-track uranium production from Honeymoon's restart area from only 36Mlbs of the Project's global JORC Resource of 71.6Mlbs. No further permitting is required to resume production and Honeymoon has a valid Uranium Mineral Export Permission for 3.3Mlb/annum.

This means there is substantial scope to extend the mine life and increase the EFS production nameplate capacity of 2.45Mlb/annum from the remaining identified JORC resources. There are also genuine growth opportunities from Honeymoon's significant defined Exploration Target[19].

To unlock this value Boss's geologists are in the field completing ground-based, low-cost and non-invasive geophysical surveys within its substantial 2,595km^2, 100%-owned exploration package. Following the completion of the surveys and subsequent interpretation of the results, the Company plans to undertake an exploration drill programs to exploit the identified areas of interest commencing in the 4th quarter 2021, with the objective of extending Honeymoon's mine life and increase its production profile by upgrading

[19] *Refer ASX announcement dated 25 March 2019.*

known JORC resources outside of the Mining Licence and targeting greenfields exploration areas distal to the known resources, and thereby grow the project's NPV and free cashflow.

There is clear potential for further uranium resources to be developed both proximal to the existing mine lease and further afield. Future exploration is being looked at in this context. Boss holds high expectations that its exploration activities will continue to deliver an expansion of resource, successful geological campaigns which grown the global JORC resource from 16.6Mlbs to 71.6Mlbs (~331% increase) since acquiring Honeymoon in December 2015.

Near-mine extensions that may be accessed with the infrastructure (trunk lines, power distribution) on the existing mine lease.

More regional exploration for resources which may be developed utilising the spoke and hub loaded resin transport model widely used in the United States ISR industry. Boss will develop a model for spoke and hub development, incorporating plant upgrade requirements to understand the maximum economic distance from the main facility resources that may be accessed with the mineralisation requirements to support a spoke development.

Merger and Acquisition Activity

Boss continues to review opportunities in the uranium sector, seeking to leverage its management and technical strength to add value to accretive opportunities.

Alternative Energy Sources and Energy Efficiency Programs

The Honeymoon plant and wellfield will operate at a uniform power draw across the day. The plant location is ideally suited for solar power generation to supplement grid power to offset peak and shoulder usage charges. Boss intends to investigate the economics of installing a solar system to supplement the power demand and to assess if a significant cost saving can be realised.

A power optimisation study will be undertaken 2H 2021 to assess alternate energy sources for the Project. The study will also consider managing power loads as much as practicable to target use in the off-peak periods.

Solution Stacking

Once developed and operated for a short period of time, the incremental reagent cost of operating wellfields is low. Lower grade wellfields or wells reaching the end of their useful life may be operated in such a way that the pregnant solution is re-fortified with oxidant and used as a feed solution for another wellfield, essentially operating two wellfields in series. This is known as solution stacking.

Wellfield configurations

Alternative wellfield configurations are being reviewed for applicability to the Honeymoon deposit. Boss has reviewed worldwide best practice in ISR to ensure the wellfield development employed is fit for purpose to maximise the value of wellfield capital investment.

Oxidant Recovery and Secondary Oxidants

There are several work programs ongoing relating to continuous improvement of the IX chemistry, including:

- Ferric sulphate is an expensive reagent, which is imported, but it can be delivered as a 42% solution. Quality of the imported solid is variable, which is a risk to the Project. A trade-off study will be conducted to evaluate any potential economic benefit from transporting that solution, prepared locally;
- The SysCAD model suggested that the gypsum produced in the WTP contains iron. That iron could be leached producing a recycled source of ferric sulphate on site;

- Iron ore/sulphide could also be dissolved in sulphuric acid to produce ferric sulphate. Boss is aware of uranium operations that produce ferric sulphate relatively cheaply on-site;
- These potential sources of ferric sulphate will form part of that trade-off study;
- Test work has been conducted at several uranium hard-rock operations to evaluate the use of Caro's acid (H_2SO_5). Caro's acid can be manufactured in a simple reactor by the controlled reaction of hydrogen peroxide with sulphuric acid;
- Caro's acid would allow improved process control, could reduce secondary oxidant consumption and may generate sulphuric acid savings; and
- Caro's acid generators are now frequently used in the gold mining industry to destroy cyanide and to avoid the excessive storage of hydrogen peroxide. Test-work will be conducted to evaluate Caro's Acid as a secondary oxidant.

Gypsum Pond and Water Treatment Plant Optimisation

Opportunities exist to optimise the size of the new Groundwater Treatment Plant (**WTP**), which is likely to reduce in the size from 250m^3/h to 150m^3/h. Reactors and thickeners should become smaller, and the footprint reduced. Alternative types of thickeners will also be evaluated.

This should reduce the existing capital cost estimate for the WTP and may allow a significant reduction in the capital required for smaller gypsum storage ponds. Boss will conduct test work on gypsum thickening and filtration to confirm the equipment sizing. The production of dry gypsum stacking, as practised in fertiliser plants, will be evaluated.

Other reagents

Boss will conduct a trade-off study into bulk salt supply or 1000 kg bulk bags. There may be an opportunity to reduce the capital cost by using bulk bags, utilising existing redundant equipment.

Sodium carbonate is imported into Australia and currently makes up 27% of the reagent operating cost. A known supplier receives bulk shipments into Melbourne but could potentially import into South Australia. A trade-off study will be conducted on bulk supply to a new silo or bulk supply in containers, i.e. reduced capital cost vs increased operating cost.

APPENDIX 1: MATERIAL ASSUMPTIONS USED IN THE ENHANCED FEASIBILITY STUDY

Criteria	Commentary
Status of Study	*The information and production targets presented here are based on an Enhanced Feasibility Study. The Company advises that the EFS uses a portion of Inferred Resources; in the first 3 years (less than 4%) and over the 11-year life of mine (24.7%). The Company confirms that the use of Inferred Resources is not a determining factor to the Honeymoon Project's economic viability* *There is a low level of geological confidence associated with Inferred Resources and there is no certainty that further exploration or evaluation work will result in the determination of Indicated Resources or that the production targets reported in this announcement will be realised.* *The EFS has been prepared with an accuracy level of +/- 10%-15%. There is no certainty that the conclusions of the EFS will be realised.*
Mineral Resource Estimate Supporting Production Targets	*The EFS referred to in this announcement is based on a JORC Mineral Resources Estimate. The detailed assumptions regarding the JORC Mineral Resources Estimate are outlined in the Company's ASX announcement "149% Increase in Measured and Indicated Resources at Honeymoon" dated 25th February 2019.* *No Exploration Target was included in the EFS.*
Classification	*The production targets referred to in this announcement are based on Mineral Resources which are classified as 75% Measured and Indicated and 25% Inferred and Unclassified over the 11-year life-of-mine.*
Wellfield Design Assumptions	*The production target is based on an ISR process. The hydrological performance of the wellfields was based on the work carried out by an independent consultant, incorporating the performance of the FLT undertaken by the Company in 2017 as well as the performance of the wellfields that were operated by Uranium One prior to the shut-down.* *The cut-off grade thickness value used to define the wellfield pattern was 1800 ppm U_3O_8 x metres for a single mining horizon and 500ppm U_3O_8 x metres for multiple horizons* *The wellfield pattern dimensions were defined on an economic requirement and benchmarked against other operations.*
Metallurgical Assumptions	*The uranium recovery has been derived based on the performance of the FLT undertaken by the Company in 2017 as well the wellfields that were operated by Uranium One prior to the shut-down, specifically Wellfield C.* *Further validation was undertaken through a series of variability leaching test undertaken by ANSTO on 8 samples collected as part of the 2018 infill drill program.* *The plant recovery is dependent primarily on the uranium precipitation efficiency, which was determined through a series of batch tests undertaken by ANSTO and confirmed through a continuous mini plant undertaken in 2019.*
Capital Costs	*Plant and Infrastructure capital costs have been estimated by an independent consultant and are consistent with an accuracy of +/- 10%-15%. The estimates have a base date of first quarter 2021 and an overall average contingency of A$7.8M has been included in the estimate in additional to a A$5.3M contingency included as part of its financial analysis.* *Capital costs have been estimated for the Re-start (A$80.3M) and additional IX columns (A$26.4M). The requirement for capital expenditure over the life of the Project that is not covered within the capital costs estimate is captured in Sustaining and Deferred capital cost estimates.*

	Sustaining capital expenditure and Deferred capital expenditure were also estimated by the independent consultant.
Operating Costs	*Wellfield and plant operating costs have been estimated by an independent consultant and are consistent with an accuracy of +/- 10%-15%. The estimates have a base date of first quarter 2021. No contingency was included in the estimate.* *Operating costs were developed largely from first principles based on the testwork, steady state mass balances, process data criteria, mechanical equipment lists and the capital costs.* *Operating costs were broken down into their fixed and variable components to accommodate cash flow scheduling. Variable costs were linked to total pregnant leach solution flow rate or uranium production.*
Infrastructure	*The Honeymoon processing plant, wellfields, access roads, power transmission, water source, camp and administration buildings are currently under care and maintenance and can be easily brought back online once modifications described in this Study have been completed.*
Environmental	*The project already has an approved EIS granted under the Environment Protection (Impact of Proposals) Act 1974. The Current EPIP approvals allow for production rate of up to 3.3Mlb/annum.*
Social	*In December 2018, the long-standing competing native title claims over the Company's tenements and mining licence held in South Australia were concluded. As part of the Consent Determination, existing agreements with the Company were novated to the new native title body corporate, preserving their operation into the future and affirming one new claim group with whom the Company will deal with going forward.* *Existing native title agreements over Company held tenements and mining licence that were already in place and have been preserved with the Adnyamathanha, Wilyakali No. 2 and the Ngadjuri Nation People will transfer to the new native title body corporate which will hold the native title for its constituents.*
Revenue Factors	*To arrive at a base case for this study, Boss reviewed an unbiased cross section of industry spot price forecasts (a total of 10 analysts were included). The Company then performed a historical analysis of the relationship between long term and spot price indicators since 1996 which demonstrated that the long-term price traded at a 25% premium to the spot price. This validity of assuming that this premium would continue in the future was supported by an analysis by Numerco[20], which confirmed that that they expected the 'continued contango relationship to exist between the spot and long -term prices well into the 2030's. On this basis the Boss forecast price assumptions ascertained it is reasonable to expect long-term contract prices will trade at a premium to spot prices in future. By applying this methodology, the average price applied over the LOM is US$60/lb.* *Although Boss has used a price of US$60/lb as a base case scenario for its financial analysis, it has also presented the detailed financial outcomes at a U_3O_8 price of US$40/lb and US$80/lb.*
Exchange Rate	*Estimates in this announcement are presented in US$ unless otherwise stated. An exchange rate of A$1:US$0.75 was used.*
Economic Parameters	*The EFS has been completed with an accuracy of +/- 10%-15%. Further evaluation work is required to estimate ore reserves. A discount rate of 8% was used for financial modelling. The number is considered a prudent and suitable discount rate for project funding and economic forecasts in Australia. The model has been run as a life of mine model and includes sustaining and deferred capital costs.*

[20] *Numerco Limited is an independent commodity supply and technology company.*

	The EFS outcome was tested for key financial inputs including: price (+/- 20%), exchange rate (+/- 20%), operating costs (+/- 20%), capital costs (+/- 20%) and discount rate (+/- 2%). The outcomes are shown in Figure 12.
Funding	*In order to achieve the range of outcomes indicated, upfront funding in the order of A$106.7M will be required.* *Following an acceptable U_3O_8 price being achieved, it is anticipated that the finance will be sourced through a combination of debt and equity, with an emphasis on avoiding dilutive capital raisings. The Company also holds 1.25M pounds of uranium inventory which provides an enhanced financial position and increased flexibility in project funding and offtake negotiations.* *The Company has also had discussions with potential off-takers for the sale of production from Honeymoon which would unlock debt financing opportunities. A combination of fixed and market related pricing was proposed at or around long-term benchmark levels for term contracts. As uranium demand and its price environment strengthens, and aligns with the Company's time schedule for Honeymoon returning to production, such arrangements will be favourably considered.* *The Company's current market capitalisation is ~A$365M and it has successfully raised ~A$75 million over the last 12 months (for which ~A$52 million has been used to purchase 1.25M pounds of uranium inventory). The Board of Boss believes that there is a reasonable basis to assume that funding will be available as and when required by the Company for the development and production schedules based on the following:* • *The Company has commenced discussions with global lenders in regards to funding the resumption of operations. Confidentiality Agreements with several global lenders have been signed and formal indicative financing proposals will shortly be sought;* • *The economics of the EFS are highly attractive and for this reason it is reasonable for the Company to anticipate that both debt and equity financing will be available to further develop the Project;* • *The Company holds 1.25M pounds of uranium inventory providing flexibility in project funding and offtake negotiations in addition to ~A$20 million in net cash;* • *The Company is confident that it will continue to increase the Mineral Resource beyond that of the current study, which currently only utilises the JORC Resource of 36Mlbs within the Restart Area and excludes the remaining 35.7Mlbs sitting outside the Restart Area;* • *Operational and support infrastructure already in place;* • *The Board and executive team have a strong financing track record;* • *The Company has strong reputable brokerage support for the Project, providing reasonable anticipation that equity financing will be available to further progress the outlined development of the Project; and* • *All sustaining and deferred capital expenditure funding is assumed to be generated by company generated cashflow.*
Other	*There are several other material risks to this project including uranium price, competition, scheduling and other similar risks of resource projects.*
Independent Review	*Study inputs were prepared by Competent Persons / Independent Consultants identified in the announcement.*