ASX Announcement
21 January 2020

Honeymoon FS confirms Boss Resources as Australia's next uranium producer

Boss Resources Limited (ASX: BOE) (**Boss** or the **Company**) is pleased to report results of Honeymoon's Feasibility Study (**FS** or the **Study**) for the base case restart and expansion of its Honeymoon Uranium Project (**Honeymoon** or the **Project**) in South Australia.

Outstanding FS results, based on a conservative uranium price, position Honeymoon as one of the world's most advanced uranium development projects that can be fast-tracked to re-start production in 12 months with low capital intensity to seize an anticipated rally in the uranium market.



***Figure 1**: Boss' Honeymoon Uranium Project, 80km north-west of Broken Hill in South Australia.*

Cautionary Statement

As the FS for Honeymoon utilises a portion of Inferred Mineral Resources, the ASX Listing Rules require a cautionary statement to be included in this announcement.

The FS 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: 25 February 2019). The Company advises that the FS uses a portion of Inferred Resources; in the first 3 years (1%), in the first 5 years (7%) and over the 12-year life of mine (18%). 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 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.

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First Mover Advantage

- Honeymoon **fully permitted to export 3.3Mlbs/annum U_3O_8** equivalent[1].
- **Fast-tracked production,** within 12-months, utilising A$170m of historical infrastructure expenditure and existing plant which previously produced and exported uranium.
- Market forecasts indicate an improvement in the underlying U_3O_8 price. Honeymoon is one of a few advanced uranium projects ready to take advantage of market improvement.

Demonstrated Growth Potential

- **FS Base Case is limited to the Honeymoon Restart Area only**, comprising 36Mlbs JORC resource[2] with a restart plan comprising of: **Stage 1** (refurbishing the existing Solvent Extraction plant with significant process improvement), and **Stage 2** (adding an Ion Exchange circuit), to achieve an annual production of 2Mlbs U_3O_8 equivalent.
- A further **36Mlbs of JORC resources sits outside the Restart Area**, in addition to a defined exploration target range, providing Boss with genuine growth opportunities for Honeymoon's mine life and production profile.
- As the anticipated upswing in uranium fundamentals occurs, Boss will restart operations and exploit these additional resources to maximise shareholder value.

Strong Financial Results

- Estimated average all-in cost (**AIC**) of US$32.3/lb U_3O_8 over LOM, and an all-in sustaining cost (**AISC**) of US$27.4/lb U_3O_8 over the life of mine[3] (**LOM**) (payback period of approximately one third of LOM).
- FS base case Net Present Value (pre-tax) (**$NPV_{8\%}$**) of US$163m (A$240m[4]) and 42.9% Internal Rate of Return (pre-tax) (**IRR**) (at an average U_3O_8 price of US$50/lb).

Low Capital and Operating Costs

- FS demonstrates a very low upfront capital requirement to restart Honeymoon and become one of the lowest cost uranium producers globally.
- Honeymoon base case scenario results, compared to the Preliminary Feasibility Study (**PFS**) completed in 2017, include a ~71% increase in **LOM to 12 years**, and a ~7% decrease in upfront **capital expenditure of US$63.2 million** (A$92.9m) (excluding offsite power provider upgrades).

Ready for Restart

- FS is the final independent validation for Honeymoon's restart, having technically de-risked the asset and optimised the process flowsheet through multiple phases of test work and study.
- Strong bank balance[5], with no debt, to fully fund 2020 operations to optimise capital and operating expenditure.
- Boss will avoid dilutive capital raisings while **engaging with utilities for off-take** and continuing commercial discussions.

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[1] *Refer ASX announcement dated 8 April 2019*
[2] *Refer ASX announcement dated 25 February 2019*
[3] *LOM is Life of Mine duration for mining and processing for uranium production*
[4] *A$:US$ exchange rate A$1:US$0.68*
[5] *Cash on hand as at 31 December 2019 is A$5.3m*

Commentary

Boss Managing Director and CEO Duncan Craib said

"Our FS base case results confirm we will be Australia's next uranium producer. The 100%-owned Honeymoon Uranium Project offers an unparalleled investment opportunity; an impressive IRR with low capital intensity and short time to re-start production, with excellent leverage to the anticipated upswing in uranium fundamentals.

"Reflecting a conservative base case uranium price of $50/lb U_3O_8 over LOM, the FS demonstrates Honeymoon's advanced development can rapidly respond to a market rally, given the low capital barrier.

"It's average all-in-cost of US$32.3/lb U_3O_8 over LOM positions Honeymoon as one of the lowest operating uranium production costs world-wide.

"Completion of the FS milestones offers investors a real and near-term uranium supply prospect and allows us to progress off-take contracts with utilities world-wide.

"The FS base case was designed for fast-tracked production by recommissioning the existing SX process within 12 months before expanding production to 2Mlbs U_3O_8 equivalent per annum. Our team has technically de-risked the Project and ensured there is no timeline drag from onerous tasks of securing permits and approvals needed to restart production.

"With A$170m of historical expenditure on infrastructure and plant in place which previously produced and exported uranium, Honeymoon has one of the lowest restart capital intensities in the uranium sector, with a base case pre-tax NPV to capex ratio of 2.6x, and minimal construction risk.

"The FS base case utilises only a portion of Honeymoon's JORC resource, excluding 36Mlb of JORC resource outside the Restart Area, which could expand the mine life, and Boss' defined exploration target could potentially extend the mine life beyond the initial 12 years and increase the production profile. Honeymoon's Federal EPIP Act approvals allow export of more than 3Mlbs/annum U_3O_8 equivalent.

"Recognised industry endorsement of Honeymoon is providing opportunities for Boss to progress off-take contracts with utilities world-wide, and commercial discussions continue."

Project Overview

Boss' FS provides a base case to fast-track uranium production from the Honeymoon Restart Area (**Restart Area**) to achieve a 12-year LOM at 2Mlb/annum U_3O_8 equivalent, from only 35.9Mlb of the Project's global mineral resource (JORC 2012) of 71.6Mlb. A total of 94% of the Restart Area Measured and Indicated resource is located within the boundaries of Mining Licence (**ML**) 6109, which has mining approval. ML6109 has a Uranium Mineral Export Permission for 3.3Mlb/annum U_3O_8 as renewed by the Australian Federal Government in April 2019[6]. No new permitting is required on ML6109.

The FS indicates a technically sound and financially viable project, capable of generating more than A$492 million in pre-tax free cash flow over the Project life (Table 1). Total pre-production capital is estimated at A$92.9 million, including a project contingency of A$8.1 million. The FS is based on in-situ recovery (**ISR**) mining with an average uranium tenor of 49 mg/l targeted over the LOM from the wellfields. All base case financial analyses were completed assuming an average US$50/lb U_3O_8 price

[6] *Refer ASX announcement dated 8 April 2019*

over the LOM. Sensitivity analysis at a lower and higher industry referenced prices of US$40/lb U_3O_8 and US$60/lb U_3O_8 demonstrates downside and upside to the Project (Table 2). The Company considers a base sales price of US$50/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 (anticipated from 2023) will incentivise restarts whilst a price closer to US$60/lb will be needed for most new mines.

***Table 1**: Summary of Financial Outcomes (assuming a US$50/lb U_3O_8 price)*

Measure	Unit	A$M	US$M[4]
Uranium Produced (Stage 1+2 LOM total)	Mlbs	20.74	
Gross Revenue (over LOM)	$M	1,480	1,006
Free Cash flow (Pre-tax)	$M	492	334
Free Cash flow (Post-tax)	$M	365	248
EBITDA margin (avg over LOM)	%	50.11%	
IRR (Pre-tax)	%	42.90%	
IRR (Post-tax)	%	33.29%	
NPV 8% (Pre-tax)[1]	$M	240	163
NPV 8% (Post-tax)[1]	$M	166	113
Stage 1 & 2 Capital Cost	$M	92.9	63.2
AISC[2]	$/lb U_3O_8	40.2	27.4
AIC[3]	$/lb U_3O_8	47.5	32.3
Total Project Payback (post tax, after production commences)	Years	4.5	

1. *8% discount rate applied*
2. *AISC = wellfield operating, processing, site G&A, freight, marketing, royalties and sustaining capital expenditure*
3. *AIC = AISC + development and deferred capital expenditure*
4. *A$:US$ exchange rate A$1:US$0.68*

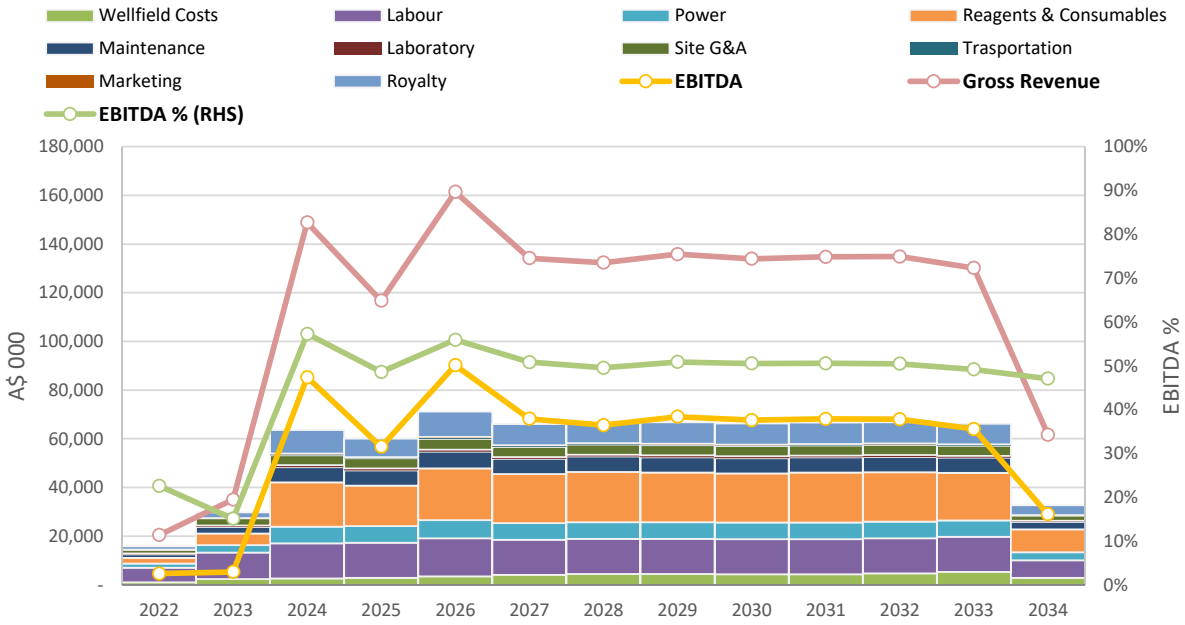


***Figure 2:** Project revenue and costs (A$'000's) at a U_3O_8 price of US$50/lb*

About 35.7Mlb of the Project's global mineral resource of 71.6Mlb (using a 250ppm U_3O_8 cut-off) is outside the Restart Area. In addition, there are genuine resource growth opportunities from a defined Exploration Target, comprising 28Mt to 133Mt of mineralisation at 340ppm to 1,080 ppm U_3O_8 for 58Mlbs to 190Mlbs U_3O_8 (26,300 to 86,160 tonnes of contained U_3O_8), using a cut-off of 250ppm[7]. Note the potential quantity and grade of the Exploration Target is conceptual in nature. There has been insufficient exploration to estimate a Mineral Resource and it is uncertain whether future exploration will result in the definition of a Mineral Resource. Boss has used geophysical exploration techniques to identify new drill-ready targets. Subsequent drilling of these targets has the potential to significantly increase the global resource and expand Honeymoon's production profile and LOM.

Boss designed the FS to fast-track production from Honeymoon's existing solvent extraction plant (**SX**) within a 12-month period, following a decision to mine, to capitalise on any improved market fundamentals. It plans to increase production to 2Mlbs/annum U_3O_8 equivalent through the addition of the Ion Exchange (**IX**) plant which will take approximately 20 months to design, construct and commission. The envisaged final stage of the production is to ramp up plant capacity from 2Mlbs/annum, with Honeymoon permitted to produce more than 3Mlb/annum U_3O_8 equivalent, contingent on market conditions and U_3O_8 price. Stage 3 does not form part of the current FS, but will be investigated when the source of additional uranium production has been better defined.

The FS has been evaluated at a long term US$50/lb U_3O_8 price (**FS Base Case**). The Project is highly leveraged to the uranium price, as identified in Table 2, which displays comparable potential financial performance at U_3O_8 prices of US$40/lb (**FS Downside**) and US$60/lb (**FS Upside**). In the FS Upside scenario, the Project generates an additional A$264m (+54%) in pre-tax cash flows while the pre-tax NPV increases by 63% to US$266m (A$392m).

Table 2: *Key Financial Summary and Sensitivities with U_3O_8 prices of US$40/lb, US$50/lb, US$60/lb*

Financial Metric	Unit	FS Downside US$40/lb		FS Base Case US$50/lb		FS Upside US$60/lb	
		A$	US$	A$	US$	A$	US$
Revenue	$M	1,196	813	1,480	1,006	1,764	1,200
EBITDA	$M	477	324	742	504	1,007	685
Free Cash flow (Pre-tax)	$M	227	154	492	334	756	514
Free Cash flow (Post-tax)	$M	175	119	365	248	551	375
EBITDA margin	%	39.86%		50.11%		57.06%	
IRR (Pre-tax)	%	22.10%		42.90%		62.11%	
IRR (Post-tax)	%	17.25%		33.29%		47.97%	
NPV 8% (Pre-tax)	$M	88	60	240	163	392	266
NPV 8% (Post-tax)	$M	57	39	166	113	273	185
NPV 6% (Pre-tax)	$M	113	77	286	194	459	312
NPV 6% (Post-tax)	$M	78	53	202	138	323	220
AISC[1]	$/lb	39.3	26.7	40.2	27.4	41.1	27.9
AIC[2]	$/lb	46.6	31.7	47.5	32.3	48.4	32.9
Total Project Payback	yrs	9.3		4.5		3.0	

1. *AISC = wellfield operating, processing, site G&A, freight, marketing, royalties and sustaining capital expenditure*
2. *AIC = AISC + development and deferred capital expenditure*

[7] *Refer ASX announcement dated 25 March 2019*

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

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

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Introduction

Boss is an ASX-listed exploration and development company. The Company's primary asset is its 100%-owned Honeymoon Uranium Project in South Australia, approximately 80km northwest of Broken Hill near the South Australian / New South Wales border. The previously operated mine is fully permitted, and Boss is planning a low capex restart to recommence uranium production within a very short lead time and become a globally competitive low-cost producer. Honeymoon is endorsed by the local Indigenous communities with Native Title agreements in place[8], while mining and uranium export permits (both State and Federal) remain valid for ML6109, within which the Project sits.

Boss's Restart and Expansion plans have been split into three separate stages, of which Stage 1 and 2 are presented as the base case for this FS showing that production can recommence within a 12-month period.

Stage 1 development will focus on the restart of the existing SX plant, which has a nameplate capacity of 0.88Mlb/annum U_3O_8 equivalent. This involves recommissioning the recently operated plant (which produced and exported during 2011 – 2013), inclusive of several key low-cost modifications to rectify the processing issues encountered by the previous owners, Uranium One Australia Pty Ltd (**Uranium One** or **UOA**). In addition, the yellow cake drying facility will be upgraded from the existing dryers to high temperature kilns producing a calcined U_3O_8 product which has greater market appeal.

Stage 2 is an expansion strategy that will increase production to 2Mlb/annum U_3O_8 equivalent and involves the construction of a new IX circuit. The expansion will also include additional processing infrastructure required to handle increased pregnant leach solution (**PLS**) flow rates and a new water treatment plant to manage increased calcium and sulphate levels in the leach liquors. Stage 3 is not considered in this base case FS, but is being investigated for ramp up of production capacity from 2Mlb/annum to in excess of 3Mlb/annum U_3O_8 equivalent as endorsed by Federal EPIP Act approvals.

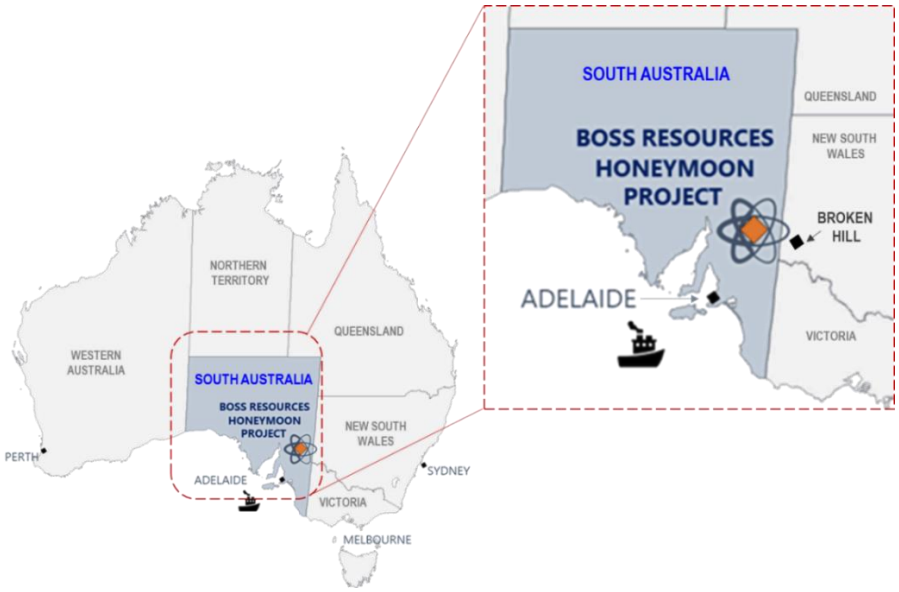


Figure 3: Location of Honeymoon

[8] *Refer ASX announcement dated 19 December 2018*

The base case for the FS is limited to the Restart Area, comprising 36Mlbs of JORC resource. Initial production will consist of wellfields previously developed by Uranium One, that are contained within the Measured and Indicated portions of the Mineral Resource on ML6109 in the Restart Area. As production ramps up, new wellfields will be developed. Boss will utilise modern well installation technology to precisely target the production zone and improve leaching performance.

A further 36Mlbs of JORC resource sits outside the Restart Area, with an additional Exploration Target of 28Mt to 133Mt of mineralisation at a grade of 340ppm to 1,080ppm U_3O_8 for a contained 58Mlbs to 190Mlbs U_3O_8 (26,300 to 86,160 tonnes of contained U_3O_8), using a cut-off of 250ppm. The Exploration Target would be exploited when the anticipated upswing in uranium fundamentals occurs.

Boss anticipates the Stage 3 increase in production capacity to be achieved through the development of satellite operations on its Western tenements, with uranium-loaded resin then trucked to the Honeymoon plant. The Honeymoon plant would be modified with an additional IX column and downstream circuits to meet an increased production target as required by the market. The approach for Stage 3 will be confirmed once the source of the additional production has been better defined through exploration programs currently underway.

Study Parameters

The FS is based on the following key parameters:

- Stage 1 – Re-commission the existing SX facility and infrastructure, including the various modifications required to improve performance, rectify problems identified during previous operations along with an upgraded yellowcake drying and packaging facility;
- Stage 2 – Supplement the SX facility using a parallel IX process, upgrade leach liquor circuits for higher flowrates and add an additional water treatment plant, all to achieve a 2Mlb/annum U_3O_8 equivalent production rate;
- Advancing the concept developed in the Prefeasibility Study (**PFS**) and incorporating the results from the various optimisation and trade-off studies[9] completed in the interim to deliver a robust FS;
- Report on the design of the optimal leach patterns for the wellfields and define the associated production scheduling based on these patterns;
- Summarise all testwork carried out to date including the results of the Field Leach Trial (**FLT**) and IX piloting undertaken in 2017;
- Provide an updated Mineral Resource;
- Review all requirements for updating relevant permits;
- Prepare capital and operating costs (Class 3) for the Project to an accuracy of +/- 10% - 15%;
- Prepare an overall cash flow schedule for the LOM to allow financial modelling of the Project;
- Carry out a risk and opportunity assessment for the Project; and
- Develop recommendations for work in the next stage of Project development.

[9] *Refer ASX announcement dated 3 April 2019*

Study Team

The FS has been managed by Boss' Project Team (**Owner's Team**) working in conjunction with several specialised consultants, as listed below, to complete studies on all aspects of the Project. This follows on from the extensive packages of technical work Boss had completed since it acquired Honeymoon from Uranium One in December 2015, specifically:

- A Scoping Study in 2016;
- A PFS in 2017;
- A FLT and IX Piloting campaign in 2018;
- Numerous trade-off and optimisation studies in 2018 and 2019; and
- Restart Assessment undertaken in 2019.

Boss Resources appointed GR Engineering Services Limited (**GRES**) as the engineering and lead study consultant for the FS. Other contributing consultants include:

- AMC Consultants (**AMC**) - Mineral Resource Estimate;
- Groundwater Science - Wellfield design and production scheduling; and
- Australian Nuclear Science and Technology Organisation Minerals Laboratories (**ANSTO**) – Testwork.

Key Outcomes of the Feasibility Study

Key FS outcomes for the Project, in comparison with the PFS completed in May 2017, are shown in Table 3.

Table 3: *FS vs PFS Comparison at US$50/lb U_3O_8*

Financial Metric	Unit	PFS (US$50/lb U_3O_8)	FS (US$50/lb U_3O_8)
		US$	US$
Life of Mine	years	7	12
LOM Production	Mlbs	14.6	20.7
Total Development Capital	$M	65.8	63.2
AISC	$/lb U_3O_8	23.2	27.4
AIC	$/lb U_3O_8	35.7	32.3
Payback	years	4.9	4.5

The key changes from the PFS to the FS are as follows:

Stage 1

- Inclusion of increased oxidant (ferric) in leach liquors to improve leaching process;
- New kiln incorporated to produce a calcined U_3O_8 product;
- Convert existing batch uranium precipitation circuit to a continuous precipitation circuit;
- Simplified organic removal systems for both barren leach solutions (BLS) and SX strip liquors; and
- Upgraded power transmission line from Cockburn, South Australia.

Stage 2

- Eliminated the second uranium precipitation circuit (continuous precipitation circuit used for both SX and IX liquors);
- IX process with the new resin identified as part of the extensive metallurgical testwork program with the proposed modified elution process; and
- Eliminated the nanofiltration circuit on the IX eluate.

Project Approvals

Ore-grade uranium was first discovered in Tertiary paleochannel sediments at Honeymoon by the Minad-Teton-CEC Joint Venture in 1972. However, as ISR mining methods were not fully developed in the early 1970's, it was not until later that decade the feasibility of uranium extraction at Honeymoon was identified.

In 1982, following the Commonwealth and State Governments' approval of an Environmental Impact Statement (**EIS**) for the Project, Minad established a demonstration ISR operation at Honeymoon.

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

During the period of inactivity from 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, and most of the area including the airstrip was allowed to return to its natural state. Only the demonstration plant and warehouse remained.

In May 1997, ownership of the Honeymoon mine was passed to Minad's parent company MIM Holdings, and in the same year 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.

In 1998, following the granting of State and Commonwealth approvals, Southern Cross Resources conducted a second field leach trial (15 March 1999 and 9 August 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 in granting a ML over Retention Leases (**RL**) 10, 11 and 12 and Mineral Claims 3075, 3077, 3078 and 3079. Mining Licence ML6109 was granted in 2001, followed by two Miscellaneous Purpose Licences (**MPL**) 15 and 64 in 2002, and finally MPL 92 in 2008.

In 2007, the Honeymoon Project construction approvals documentation was prepared and submitted for assessment under the South Australian Mining Act 1971. Construction was approved by Primary Industries and Resources SA in early 2008. Construction of the Honeymoon Mine began in the second quarter of 2009 and was completed in the first quarter of 2011. Commissioning commenced soon after and the first product was dried and drummed in August 2011. Despite this achievement, the Project

did not obtain nameplate capacity and only produced approximately 335t of U_3O_8 equivalent from 2011 - 2013.

Owing to low uranium prices at the time and perceived technical issues, Uranium One placed Honeymoon into 'care and maintenance' in early 2014 and the Project has not been restarted since.

Honeymoon Acquisition

Boss entered negotiations with Uranium One in July 2015 to purchase the asset with the acquisition completed in December 2015.

As part of the due diligence work, and prior to the start of the Scoping Study in 2016, Boss completed a detailed technical review to identify the issues that impacted the plant prior to being placed on care and maintenance. This assessment indicated problems with wellfield performance that led to lower feed grades to the plant and that further to this the plant production rate was too low, even if design throughput was reached, for a sustainably profitable uranium mine at current depressed uranium prices. These economics were due to the sizing of the operation (0.88Mlbs/annum U_3O_8 equivalent) which made the cost structure for Honeymoon inefficient. Boss' strategy has therefore been to identify methods to improve wellfield performance while also developing a larger processing facility, with the use of ion exchange technologies, to improve the economics of the project.

This concept was developed as part of the earlier studies and trialled in the 2017 FLT and IX piloting campaigns, with further optimisation and trade-off work undertaken as the lead into this Study.

Tenements

Honeymoon's tenements are situated approximately 80 kilometres northwest of the town of Broken Hill, near the border of South Australia and New South Wales (Figure 4). The Project is 100% owned by Boss Resources Ltd and covers an area of 2,600 km^2. The granted ML6109 contains the Honeymoon mine site and five Exploration Leases (**EL**) cover prospects at Jason's Deposit and Gould's Dam, approximately 15km and 70km north and northwest, respectively, of the Honeymoon Restart Area. All leases are in good standing (Table 4).

The Project comprises two main resource areas:

1. The Eastern Region, containing the Honeymoon Restart Area (ML6109, EL6081 and EL5621) which hosts the Brooks Dam, Honeymoon, East Kalkaroo domains and the separate Jason's Deposit; and
2. The Western Region (EL6020, EL5623 and EL5622) which hosts the Gould's Dam deposit.

Two MPL's cover infrastructure at Honeymoon, including the powerline and the airstrip. Three RL's cover the main Gould's Dam resource area. The RL's grants security of tenure to conduct further exploratory operations. It is only issued to the holder of a Mineral Claim and may be granted if the mineral is not economically viable or if a radioactive mineral is being sought. A Crown Lease (CL 18063) covers the area of the Honeymoon mine site (Table 5).

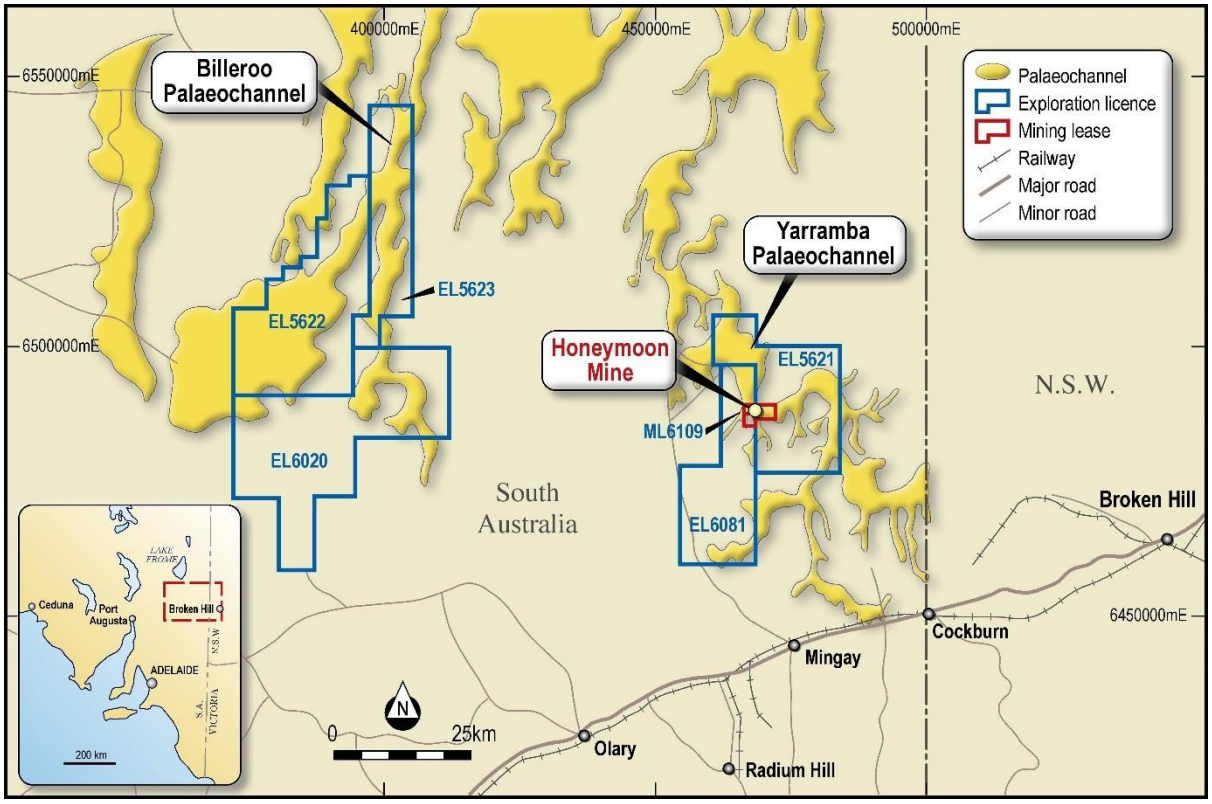


Figure 4: *Honeymoon tenement location map*

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 5621	Boss Uranium Pty Ltd	Yarramba	452	28/05/2020
EL 5622	Boss Uranium Pty Ltd	Katchiwilleroo Dam	652	28/05/2020
EL 5623	Boss Uranium Pty Ltd	Gould's Dam	334	28/05/2020
EL 6020	Boss Uranium Pty Ltd	Glenorchy	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	01/04/2020

Existing Assets

The infrastructure associated with Honeymoon includes the following key items:

- Solvent extraction processing plant with a capacity to produce 0.88Mlbs/annum U_3O_8 equivalent;
- Four Wellfields currently on care and maintenance;
- 150-person operating mining camp;
- Administration buildings;
- 75km power line connecting to grid power;
- A fleet of vehicles, spares and other equipment associated with the commissioning of the Project;
- Airstrip capable of landing light planes; and
- Extensive geological database of more than 5,000 drill holes and associated logging information.

The sunk capital for the plant and associated infrastructure was A$170 million.

Geology

Mineral Resource Estimate

In February 2019, the Mineral Resource (JORC 2012) estimate for the Honeymoon Restart Area was updated by independent mining resource experts AMC Consultants. The updated Mineral Resource (JORC 2012) for the Restart Area now stands at 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 250ppm U_3O_8 (Table 6).

The Restart Area encompasses three domains (Brooks Dam, Honeymoon and East Kalkaroo), each characterised by subtle differences in ore characteristics. The Honeymoon domain comprises the highest-grade portion of the entire Restart Area and will be the focus of wellfield operations during the initial stages of production.

Resource estimations were completed using hard boundaries created by the solid, 3D mineralisation wireframes and soft boundaries to establish the individual domains. Uranium grade estimation was completed using a Restricted Ordinary Kriging accumulation process. Dynamic anisotropy was used during estimation to accommodate the variable and complex orientations of the mineralised palaeovalley system at the different stratigraphic levels.

The Mineral Resource (JORC 2012) was classified as a combination of Measured, Indicated and Inferred Resources in accordance with JORC Code 2012 guidelines and based on the confidence levels of key criteria considered during the resource estimation process. The criteria included data quality, drilling density, geological and grade interpretations, spatial continuity of the mineralisation, and historical production. A dry bulk density value of 1.90 t/m^3 was used for consistency with historical resource estimates but was later confirmed from density testwork completed on physical core samples collected during a short sonic core drilling program completed in December 2018. Given that the lower detection limit of the PFN tool is 200ppm U_3O_8, grades falling within the 200 – 250ppm U_3O_8 bracket may be considered with less confidence than those higher than 250ppm U_3O_8. A lower grade cut-off value of 250 ppm U_3O_8 was therefore chosen to be realistic and appropriate for the Restart Area.

Table 6: Updated February 2019 Honeymoon Restart Area Mineral Resource Classification Table

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

In addition to the Restart Area, the Honeymoon Uranium Project also consists of the Jason's Deposit and Gould's Dam domains situated approximately 15km to the north and 75km to the northwest, respectively, of the Restart Area. Part of the Mineral Resource (JORC 2012) estimation work completed in 2019 also involved upgrading the global Mineral Resource for the entire Honeymoon Project. The resulting effect on the global Mineral Resource is an increase of 13% to 52.4Mt at an average grade of 620ppm U_3O_8 containing a total of 71.6Mlbs U_3O_8 using a 250ppm U_3O_8 cut-off (Table 7). This represents an overall 17% increase in contained metal mass from the previously reported global Mineral Resource estimate (JORC 2012)[10].

Table 7: Summary of upgraded Mineral Resource for the global Honeymoon Uranium Project

Resource Classification	Tonnage (Million Tonnes)	Average Grade (ppm U_3O_8)	Contained Metal (Kt, U_3O_8)	Contained Metal (Mlb, U_3O_8)
Jason's (March 2017)[11]				
Inferred	6.2	790	4.9	10.7
Gould's Dam (April 2016) [12]				
Indicated	4.4	650	2.9	6.3
Inferred	17.7	480	8.5	18.7
Honeymoon Restart Area (January 2019)				
Measured	3.1	1,100	3.4	7.6
Indicated	14	610	8.7	19
Inferred	7.0	590	4.1	9.1
GLOBAL HONEYMOON URANIUM PROJECT				
Measured	3.1	1,100	3.4	7.6
Indicated	18.4	630	12.0	25.5
Inferred	30.9	570	18.0	38.5
Total	**52.4**	**620**	**32.5**	**71.6**

Exploration Potential

In March 2019, the Company updated its Exploration Target range for the Project which now comprises a total of ten target areas; seven in the Eastern Region tenements and three situated within the Western Region tenements (Figure 5). Five of the targets are in areas extensional to the existing Mineral Resources, while the remaining five cover various geophysical anomalies similar to other geophysical features historically associated with economic mineralisation elsewhere in the region.

[10] *Refer to ASX announcement dated 15 March 2017*
[11] *Refer to ASX announcement dated 15 March 2017*
[12] *Refer to ASX Announcement dated 8 April 2016*

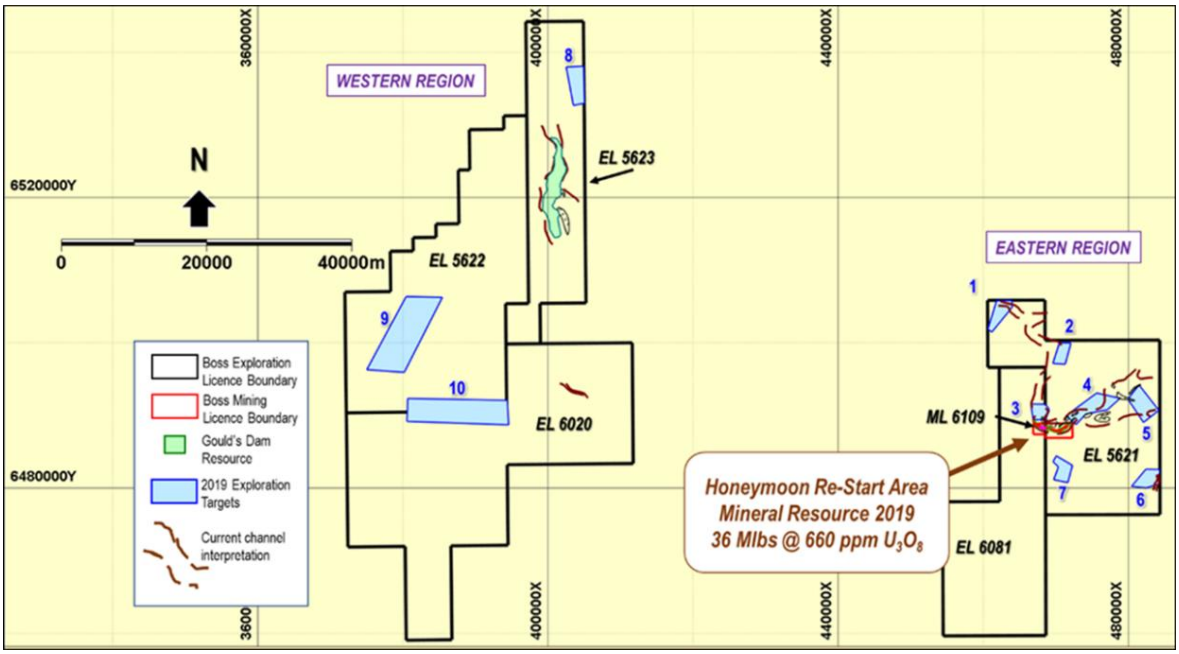


Figure 5: Project Exploration Targets

The Exploration Target estimate for the Honeymoon Uranium Project is now 28Mt to 133Mt of mineralisation at a grade of 340ppm to 1,080ppm U_3O_8 for a contained 58Mlbs to 190Mlbs U_3O_8 (26,300 to 86,160 tonnes of contained U_3O_8), using a cut-off of 250ppm U_3O_8. This updated range demonstrates that, in addition to the global Mineral Resource (JORC 2012), there is potential for a significant amount of additional uranium around the Honeymoon Project area.

Until uranium market conditions improve, exploration activities will focus on low-cost and non-invasive geophysical techniques, allowing for smaller, cheaper and more focused exploration drilling programs.

Geological Setting

Geologically, the Restart Area domains are situated above the Paleoproterozoic-aged Willyama Supergroup which began forming approximately 1700 million years ago (Ma) and comprises a thick (~7000 – 9000 metres) sequence of deformed volcanics and metasediments. Subsequent periods of regional-scale tectonic activity, rifting and formation of inland seas led to the eventual deposition and faulting of the Bulldog Shale. Around the beginning of the Palaeogene (approx. 65Ma), regional crustal subsidence was once again initiated, reactivating fault structures in the Bulldog Shale and resulting in the creation of the large-scale Lake Eyre Basin (**LEB**). The LEB extended from Central Australia to central Queensland to central South Australia and involved three distinct phases of sedimentation and changes in climate from a largely tropical, wet environment to the current arid conditions. The first phase of sedimentation is represented by the Eyre Formation, deposited between the Late Eocene to Early Oligocene (~41Ma to ~27Ma), that marked the initiation of active river systems eroding into the exposed saprolitic surface of the Bulldog Shale.

The base of the Eyre Formation is represented by large pebbles and gravels in coarse-grained sand, often containing a clay-rich matrix between larger rock fragments of eroded Bulldog Shale, broken off

by large, fast-flowing rivers (e.g. the Yarramba and Billeroo Palaeovalleys that host the Honeymoon Restart Area and Gould's Dam deposits, respectively). Overall, the Eyre Formation becomes finer-grained from the base (Lower Eyre Member) to the top (Upper Eyre Member) which is characterised predominantly by silts and clays, representing a regional change from fluvial (river) to more lacustrine (lake) environments. Within the Honeymoon Uranium Project, the Eyre Formation is situated approximately 70m below present-day ground surface to an average of approximately 130m at the channel / basement contact.

The orebody itself is a tabular, palaeovalley-style, sandstone-hosted deposit associated with:

- Vertical and lateral movement of redox interfaces;
- Channel morphology influenced by localised and regional-scale faults in the underlying basement; and
- Accumulation of lignitic and sulphide-rich material in the shallower embankments and bends of the meandering channel limbs.

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

The reduction and subsequent precipitation of the uranium from the oxidised aquifer water was likely assisted by the sulphides inherent within the basement lithologies. The predominant uranium mineral within the orebodies is said to be coffinite (internal ANSTO report, 2016) with minor amounts of uraninite and an unidentified uranium secondary mineral, currently thought to be autunite or torbernite.

Metallurgy and Testwork

An extensive testwork program was undertaken throughout the various phases of the Project to address the technical issues previously identified as being significant in the under-performance of the operation. These issues include:

- Low grade uranium tenors in the PLS (leaching chemistry);
- Gypsum scaling; and
- Organic contamination of the final product.

The program also included testwork to develop and optimise the new ion exchange process for the expanded operation. All testwork 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, which later formed part of the FLT. The testwork included examining the effect of liquor recycle on uranium extraction, the dissolution of Ca, Fe and Cl 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 (between 92.6 and 97.7% for the Low Clay sample and the two FLT samples), whilst the maximum extraction for the High Clay sample was 81.8%. Due to the high pyrite content of the samples the oxidant and acid additions were high.

Based on the results from the testwork, the optimum conditions were identified to be pH 1.5 and an Oxidation Reduction Potential (ORP) of 450 mV. Under these conditions uranium extractions may be slower and/or lower, 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 Fe concentration, and maintaining the injection ORP of 400 - 450 mV.

This selected leached chemistry is different from that used by Uranium One in their wellfield operation where they targeted a higher pH and lower ORP with the expectation that acid consumptions and gypsum formation would be minimised.

In order to validate the new leaching approach, a FLT was undertaken during 2017 in which two full scale wellfield patterns were operated for four months. Primary objectives and outcomes include:

Validate leaching conditions

The optimal leaching conditions initially developed via testwork on sonic core samples at ANSTO were confirmed, namely:

- Maintain a low pH to ensure iron stays in solution and uranium is amenable for leaching: pH below 1.5;
- Maintain a high ORP in the extraction fluid to ensure sufficient oxidation potential for uranium: ORP over 450mV; and
- Maintain an iron level as high as practical to ensure sufficient oxidation capacity for uranium: Total iron in the range of 3 – 5gpL.

Confirm calcium leaching and gypsum control measures

The regime specified by ANSTO to minimise scaling from calcium leaching and subsequent formation of gypsum was based on lower pH, higher ORP and higher iron levels with concurrent high chloride levels. This is somewhat contrary to the UOA methodology, but was confirmed by the FLT operation where low levels of scaling and little evidence of gypsum scaling was seen.

Confirm initial leach kinetics and define the initial part of the recovery curve

Operation of the two FLT patterns allowed the definition of the initial leach kinetics and the recovery curve (Figure 6). E1 Pattern (high grade) had a faster leaching rate than historical wellfields, while Pattern E3 (low grade) results were marginally lower after the 4-month period, but were increasing towards the end of the trial when the optimised leaching conditions were applied.

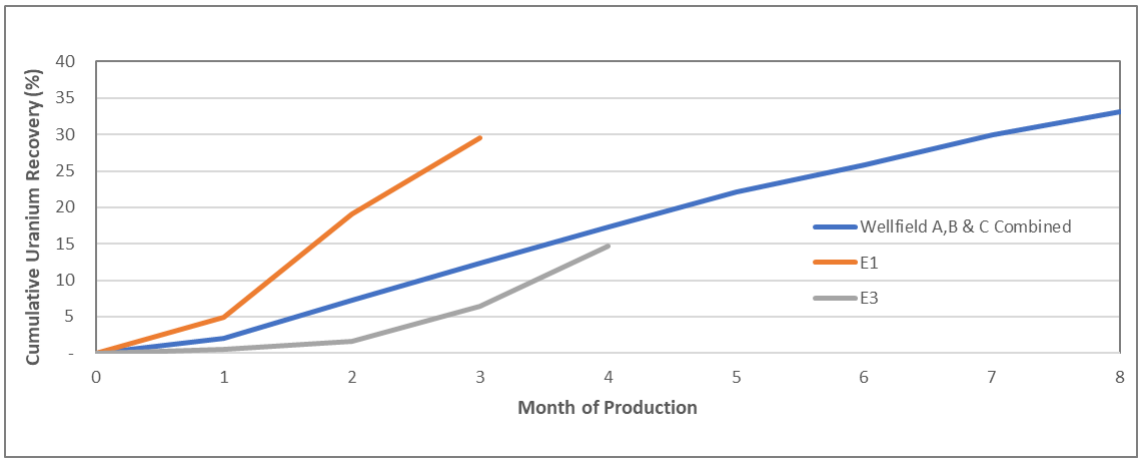


***Figure 6**: FLT Recovery Data vs UOA Wellfield Performance*

Assess reagent consumptions

Lowering the pH from the Uranium One pH of 2.0 to the Boss FLT pH of 1.4 led to a moderate increase in acid consumption of 0.48 kg/t in E3 and 0.51 kg/t in E1. Increasing the iron level from the background of around 0.5gpL to 4gpL in modified leach conditions led to a ferric chloride consumption of 3.6 tonnes in E3 and 3.48 tonnes in E1.

Boss performed further drilling at Honeymoon in the second half of 2018. As part of this work, a number of intervals taken from core samples from 9 different holes were sent to ANSTO for variability leaching testwork.

Column leaching tests were then performed on eight of the nine composite samples using a new set up defined in the development work. Although the samples leached at varying rates, the leaching kinetics were generally very rapid, showing that the uranium was readily leachable. Uranium extractions were high, between 92.2 and 99.6%, averaging 96.3%. In all tests the ORP of the PLS was ≤450 mV during the period of rapid leaching (corresponding to a Fe3+ concentration of 50 - 1,500 mg/L), showing that a high ORP was not always required for effective uranium dissolution.

Table 8: Column Leach Results

Column No.	Sample	Column Feed	Feed			Residue U_3O_8 (ppm)	Acid Cons. (kg/t ore)	Fe3+ Cons. (kg/t ore)	U Extn (%)
			U_3O_8 (ppm)	Fe (wt%)	S (wt%)				
HMC-15	BSC-007	Ore	7 774	0.79	0.90	31	0.7	5.3	**99.6**
HMC-25	BSC-008	Ore/Sand	208	0.62	0.61	14	-5.6	19.4	**93.3**
HMC-17	BSC-009	Ore	1 321	0.73	0.14	103	-0.9	7.5	**92.2**
HMC-18	BSC-010	Ore	1 166	0.54	0.10	8	1.9	0.6	**99.3**
HMC-26	BSC-011	Ore/Sand	50	0.36	0.02	3	6.4	1.0	**94.3**
HMC-28	BSC-012	Ore/Sand	186	0.76	0.30	5	0.4	9.7	**97.5**
HMC-27	BSC-014	Ore/Sand	217	0.44	0.03	5	6.5	1.9	**97.7**
HMC-22	BSC-015	Ore	513	1.43	0.40	21	-2.1	8.0	**96.3**

Gypsum Control

Gypsum scaling was identified as a critical issue during the previous operation so a solution modelling study was undertaken focused on examining the major factors affecting the formation of gypsum in PLS from the acid 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.

The modelling work was limited to studying the effect of the following parameters:

- Oxidation-reduction potential (EH) – Fe2+/Fe3+;
- Total Fe concentration;
- Chloride concentration; and
- Acidity (pH).

The modelling results suggest that is not possible to completely avoid the formation of gypsum with only changes to either EH, Fe concentration, chloride concentration or temperature. Assuming that temperature is not a parameter which can be readily controlled, formation of gypsum can be significantly reduced by targeting the following process conditions:

- pH≤1.6;
- EH≥700 mV (~490mV ORP) i.e. predominately Fe3+;
- [Fe]~3000 mg/L; and
- [Cl] ≥8500 mg/L.

Solvent Extraction

Confirmatory SX testwork was undertaken to determine if the solvent composition used previously at Honeymoon (2% Alamine 336, 2% DEHPA and 3% TBP) was still applicable for the proposed modified leach liquors (lower U_3O_8, lower pH and higher iron levels). The work confirmed the solvent composition is capable of upgrading the uranium concentration by a factor of around 20 in the loaded solvent, while a further ten-fold upgrade in the stripping section using 1M Na_2CO_3 is feasible. Therefore a 50 mg/L U_3O_8 concentration in the PLS would yield ~10 g/L U_3O_8 in the loaded strip liquor.

Reported difficulties associated with the process include precipitation of iron and third phase formation associated with the use of Na_2CO_3 for stripping. Potential improvements were proposed for further investigation including exploring potential options for improved scrubbing of Fe and Zn from the loaded solvent in order to mitigate/reduce precipitation in the stripping circuit.

The testwork, focused on finding an alternative, less aqueous soluble third phase modifier than the previously used TBP (tributyl phosphate) showed that Cyanex 923 and Isodecanol were both capable of suppressing third phase formation at lower concentrations than TBP. However, Cyanex 923 was found to inhibit the phase disengagement in the stripping section, and Isodecanol had a significant negative impact on uranium loading compared with TBP (33 % lower).

Scrubbing tests were undertaken to determine strategies to minimise iron (III) transfer to the stripping section. Scrubbing with H_2SO_4 was effective with 0.2 M H_2SO_4 at O:A 1:1 contacting, but when the O:A was increased, as would be the case in the plant, the scrubbing performance decreased significantly. Sodium metabisulfite (previously used in the Honeymoon plant) did not appear to have a significant impact on the scrubbing efficiency.

Further testwork focused on optimising the chemistry and operating conditions of the SX circuit showed that both increasing the extraction A:O and decreasing the DEHPA concentration in the solvent appear to be viable methods of reducing the amount of iron and zinc loading. Both come at the expense of reduced uranium extractions, which would mean greater raffinate uranium tenors.

Ion Exchange

There has been significant progress made in resin development in the years since UOA selected SX as the core processing unit. New resins have been developed that are more tolerant to chlorides, a key criterion for Honeymoon where chloride tenors in groundwater are in excess of 8,500mg/l.

UOA's IX Concept Study was reviewed by Boss and two resins were selected for further testwork; a weak base resin (WBA) and an iminodiacetic chelating (IDA) resin. The loading and elution isotherms of these resins were determined and the kinetics for each investigated with breakthrough curves generated. This data was then used for modelling of the ion exchange loading processes.

The loading curves were determined. Under the baseline conditions and with a uranium concentration of 53 mg/L the resin loadings were 14.2 and 14.7 g/LWSR U_3O_8, for the WBA and IDA resins respectively.

The uranium was successfully eluted off the loaded resins. However, the eluate grades were low in both cases (1.5 to 2.2 g/L) and in the case of the IDA, also contained very high level of iron requiring a second purification step.

The results indicated that the preferred case for the Project was a further modification to a hybrid option where IX with a WBA resin incorporating nanofiltration for concentration of the IX eluate, operates in parallel to the existing SX circuit. The loaded SX strip liquor and upgrade IX eluate are then treated in separate precipitation circuits to produce final product.

A second testwork program was undertaken to further optimise the selected process. Five resins were examined in the program (2 x WBA, 2 x SBA and a fifth resin with unspecified functionality).

The major outcome of the testwork program was demonstrating the exceptional performance of a newly developed strong base resin (SBA) for the extraction of uranium. This resin significantly outperformed all the other resins examined. The SBA resin is capable of loading up to around 40 – 50 g/Lwsr U_3O_8 from the synthetic liquor containing 50 mg/L U_3O_8, despite the relatively high chloride concentration examined in the test work (8.8 g/L Cl).

In order to test this resin further an IX pilot plant was installed as part of the FLT program. The IX pilot plant consisted of a fluidised IX circuit operating on a bleed stream of the PLS from the FLT for the recovery of uranium.

The IX pilot plant operated on-site continuously for a period of 10 weeks. The PLS contained between 50 and 75 mg/L U_3O_8 and was both acidic (pH 1.9 to 1.0) and saline (8 to 12 g/L chloride). The pilot plant consisted of 21 fluidised contactors divided between three modules of seven contactors each. The 21 contactors were divided into 14 loading and seven elution contactors. These represented two fluidised columns of 14 and seven stages each.

The IX Pilot Plant performance overall was in agreement with bench scale test work carried out on synthetic liquors. The adsorption circuit performed very well achieving above 97% extraction from a dilute PLS containing 50 mg/L U_3O_8, with resin loadings averaging 26 g/Lwsr U_3O_8. To place this result in perspective, a similar trial carried out in 2006 at Honeymoon, using a different resin, only achieved a loading of 5 – 7.5 g/Lwsr U_3O_8, from a PLS containing 140 mg/L U_3O_8.

The elution circuit performed well in terms of achieving low uranium concentrations, (< 1 g/Lwsr U_3O_8), in the eluted resin. However, the resultant eluate contained only < 2 g/L U_3O_8, which would require further concentration, potentially by nanofiltration, prior to uranium product recovery. The eluate produced was low in impurities and is amenable to conventional approaches to product recovery.

With additional development work a novel elution method for the selected resin was developed by ANSTO which showed a significant improvement when compared with the standard elution method. This approach uses two elution steps. The eluate produced would contain approximately 9.7 g/L U_3O_8, while an elution isotherm revealed that tenors of around 26 g/L U_3O_8 would be possible for a loaded resin containing 30 g/Lwsr, if using a continuous or split elution.

To address the perceived risks associated with the two-stage elution process a locked cycled mini-piloting campaign was undertaken to validate the process.

The fixed-bed IX mini plant, consisting of three fixed-bed columns, was operated over a one-month period. A total of 12 cycles of lead-lag-elute operation were carried out. The feed solution (2017 FLT PLS) was pumped through the lead and lag columns. Based on this work, Boss has concluded that the patented ANSTO IX elution protocol was successfully demonstrated in mini-plant scale. The integrated adsorption and elution process can deliver an upgrade in uranium concentration from a feed containing

50 mg/L U_3O_8, to an IX eluate containing 9 g/L U_3O_8. This represents an upgrade factor of 180, which compares very well with an upgrade factor of 50 for a fixed-bed IX plant such as the Beverley Uranium Mine, and 100 for Bufflex Process-type plant, such as the Rössing Uranium Mine.

Uranium Precipitation

A batch UO_4 precipitation testwork program was performed using synthetic SX strip liquor and combinations of the strip liquor with various synthetic IX eluates and nanofiltration concentrates. The first objective of the program was to define the optimum conditions for precipitation from SX strip liquor. The second objective was to determine the impact of the addition of IX eluate and/or nanofiltration concentrate to the uranium precipitation feed as the elevated chloride, and to a lesser extent, sulphate concentrations, in these feeds could potentially impede UO_4 precipitation.

The liquors were combined in ratios based upon the relative flows anticipated in practice. All three combinations were significantly higher in chloride concentration than the straight SX strip liquor, with concentrations of 41.7, 28.0 and 43.0 g/L for the FLT eluate, two-stage eluate and nanofiltration concentrates, respectively, compared to 5.3 g/L in the SX strip liquor. The tests with the two highest chloride concentrations displayed slower rates of uranium precipitation, with the two-hour ageing time only achieving 90.9% precipitation. The test using the nanofiltration concentrate was therefore performed with a six-hour ageing time, and this period was of sufficient length to achieve a >99.9% precipitation. Significantly, the test using the two-stage eluate displayed a similar rate of uranium precipitation to the test using straight SX strip, indicating that the Cl concentration of 28.0 g/L in this test did not impede precipitation.

To further validate the results and test the impact of seed recycling on precipitate quality, a continuous UO_4 precipitation mini plant ran for a total of nine days. The feed was prepared from a mixture of the eluate produced in the IX mini-plant and a synthetic SX strip liquor, combined in proportions matching the anticipated relative flows of the two streams upon restart. The mixture was acidified to pH 3.5.

The mini plant consisted of 3 x 3L titanium tanks connected in series. Hydrogen peroxide was dosed to the first tank, targeting a 130% stoichiometric H_2O_2 dose (relative to U) and NaOH added to the first and third tanks to target pH 3.5 in the third tank.

The precipitation plant ran very successfully, with uranium recoveries of >99.9% readily achieved throughout operation. Recycling of solids commenced 45 hours after the start of the run, with steady state achieved approximately 96 hours after this time. The thickener operated well, with the flocculated solids settling rapidly and very clear overflow liquor obtained. Thickener underflow densities of 70-75wt% were obtained. The amount of fines decreased as the run progressed, with these agglomerating to the particles. As the run continued an overall increase in the mean particle size was observed. According to ANSTO's experience, the Particle-Size Distribution of the solids produced in the mini plant is significantly different to that observed from seeded batch precipitation at plant scale, where the distribution was bimodal.

The use of continuous UO_4 precipitation was successfully demonstrated. Operating in a continuous configuration with solids recycling allowed denser, more spherical particles to be produced compared to those produced in a batch process with less fines, resulting in a greater thickener underflow density, improved solid/liquid separation characteristics and better packing density.

Hydrogeology and Wellfield Design

In-Situ Recovery (ISR)

ISR is the preferred, and most cost effective and environmentally acceptable, method of mining for the Honeymoon uranium resource. ISR is a proven extraction process which accounts for approximately 55% of world uranium mined, and is predominantly 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 of the pattern 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 is cased with PVC casing and includes a slotted screen installed at the depth of the orebody. The length of the screens is specific so as to cover the thickness of the mineralisation. The casing is cemented in place, isolating the ore horizon and preventing the 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. A wellfield can be made up of up to 16 extractors and 25 injector wells. Additional wellfields are subsequently installed with similar patterns over the rest of the orebody, until the entire deposit is covered.

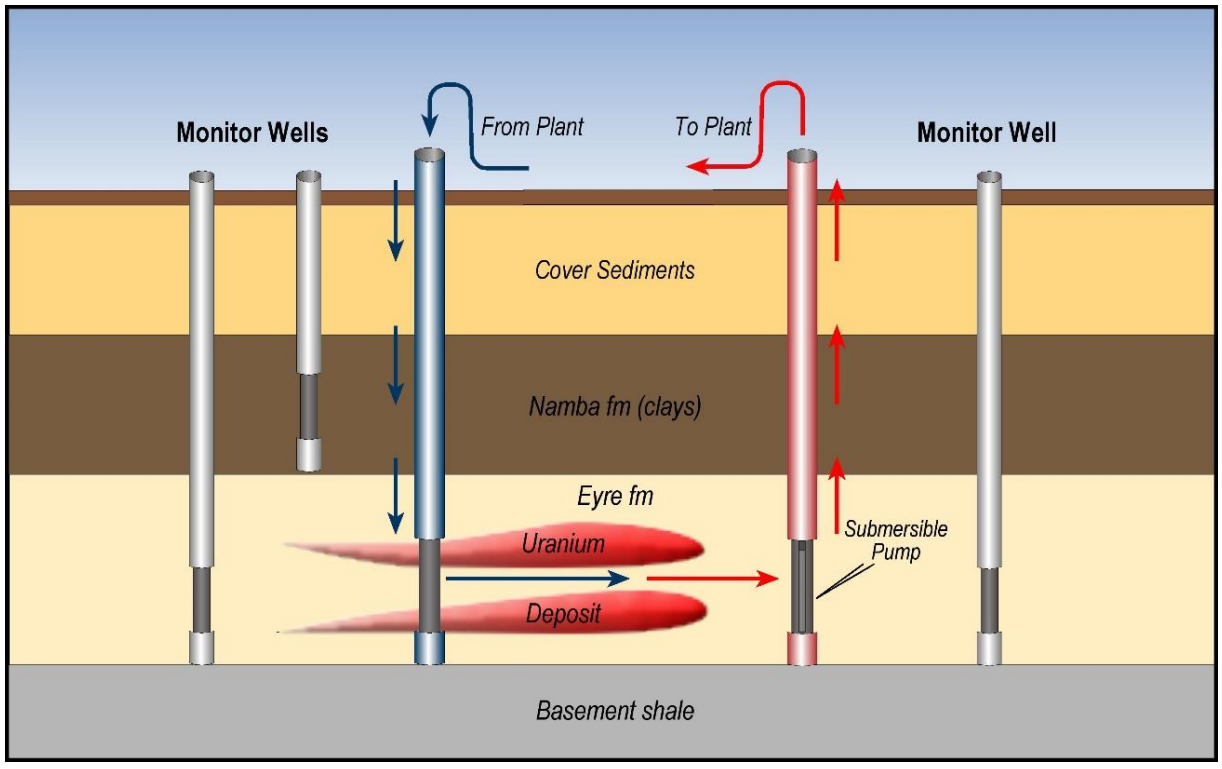


Figure 7: *Honeymoon In-Situ Recovery Schematic*

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 installed pipelines at surface transport the pregnant, uranium-rich lixiviant from the wellfields to the processing plant, where the uranium is chemically extracted until the solution is said to be "barren", or no longer rich in uranium. The uranium is recovered through a precipitation circuit to produce yellowcake and the barren liquor is refortified with acid and oxidant before it is recycled back to the wellfield to repeat the dissolution process.

Wellfield Design

A wellfield design identifies a category of mineralisation that is unique to ISR mining; referred to as "resource under leach". It is defined as the portion of the resource that is contained within the active leaching zone of the leaching wellfield and specified as the ore contained within the screened interval of the wellfield and the area within the wellfield extent. The resource under leach can contain inferred resources.

The Honeymoon wellfield plan was designed using the resource block model built by Boss and AMC consultants. The wellfield was designed to meet the project economic criteria within the specified production plan. The production plan targeted a uranium feed to the plant of 0.8Mlb per annum for the first year of production then 2.0Mlb per annum thereafter until the economic resource was depleted.

The economic criteria 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 45m well spacing, though 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 U3O8 for any mineralised interval;
- Minimum grade-thickness (GT) accumulation of 1800 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.

Production Scheduling

The resource block model developed by Boss and AMC was aggregated to combine discrete mineralised horizons that are contained within the same broad lithological unit. These units are termed Basal, Middle and Upper. They are identified in the model by Zone Codes, 1 (Basal), 2 (Middle), and 3 (Upper). Wellfields are generally designed to mine the lower ore horizon first. Once the bottom horizon is depleted, the well is grouted across the bottom interval and re-completed to access the next ore intervals. This process is repeated to mine the upper horizon. Not all areas exhibit multiple ore horizons, and the extent of wellfields changes as subsequent horizons are mined.

Table 9: Resources Under Leach

Orebody	Resource Under Leach (Mlbs)					Wellfield Area (km^2)	Average GT (m.ppm)	Wellfields
	Total	Measured	Indicated	Inferred	Unclassified			
Horizon 1	22	7.4	12	2.0	0.3	1.8	3,012	29
Horizon 2	5.7	1.1	3.3	1.3	0.1	1.1	1,205	18
Horizon 3	5.9	-	3.1	1.8	1.1	0.9	1,617	15
Total	**34**	**8.5**	**19**	**5.0**	**1.5**	**3.8**	**2,141**	**62**

The wellfields are generally planned to target the Measured and Indicated Resource defined in the block model in the early stages of production. However, ISR mining is not selective, and some lower confidence material described as Inferred and Unclassified 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 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 UOA from Wellfields A, B and C; and
- Leaching performance achieved using the optimised lixiviant defined during the Boss FLT undertaken in 2017.

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

The production schedules for the base case scenario is shown in Table 10.

Table 10: Base Case Wellfield Production Profile

Year	Production (Mlbs)			Plant Feed	
	Measured and Indicated	Inferred and Unclassified	Total	Average Flow Rate (L/s)	Average Head Grade (ppm)
1	0.6	0.01	0.6	158	56
2	1.4	0.01	1.4	338	60
3	2.0	0.05	2.0	529	55
4	2.0	0.05	2.0	537	54
5	1.6	0.44	2.0	656	44
6	1.3	0.70	2.0	715	40
7	1.3	0.69	2.0	739	39
8	1.6	0.39	2.0	667	43
9	1.9	0.13	2.0	710	41
10	1.7	0.34	2.0	711	41
11	1.3	0.68	2.0	691	42
12	1.3	0.50	1.8	670	38
Total	**17.9**	**4.0**	**21.9**		

Process Plant

The existing Honeymoon processing facility will be re-developed and expanded in two stages. Stage 1 will produce 0.54Mlbs/annum U_3O_8 equivalent in Year 1 (design capacity is 0.88Mlbs/annum, but production is lower due to ramp-up), with Stage 2 increasing production to 2Mlbs/annum U_3O_8 equivalent by Year 3.

Stage 1 works include re-commissioning the existing SX processing facility with various modifications to improve performance, rectify operational issues identified during previous operations, initiate preparations for the Stage 2 expansion and enable the production of Triuranium octoxide (U_3O_8) yellowcake by replacing the existing vacuum dryers with a calciner.

In Stage 2, production will increase to 2Mlb/annum U_3O_8 equivalent with the installation of an IX facility that will operate in parallel with the existing SX facility.

In addition to the stages detailed above there will be capital projects executed throughout the life of mine 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
- Installation of a third IX train to maintain the 2Mlb/annum U_3O_8 equivalent production target beyond Year 5.

Existing Process

Uranium is extracted at Honeymoon using the ISR method, and processed using SX at a processing plant located adjacent to the ore-body. The processing plant has a design capacity of 0.88Mlbs/annum U_3O_8 equivalent as uranium peroxide ($UO_4.2H_2O$).

Acidified leach solution, containing an oxidant, is continuously injected into the ore zone (wellfield) via injection wells and drawn to extraction wells dissolving uranium as the solution passes through the host sand between the wells. The PLS is then pumped from the extraction wells to the Honeymoon process plant where the uranium is recovered. A tenor of ~75mg/l U_3O_8 is required in the PLS in order to attain the design production rate of 0.88Mlbs/annum.

SX is used to selectively recover and concentrate uranium ahead of the subsequent precipitation stages. Soluble uranium is extracted from the PLS by an extractant blend specifically developed for the Honeymoon PLS, with the objective of being selective for uranium in the presence of chlorides and ferric iron. These contaminants are then partially removed from the organic in the scrub mixer-settlers. In the strip mixer-settlers, the scrubbed loaded organic comes into contact with a sodium carbonate strip solution and uranium is transferred to the aqueous phase. The remaining impurities precipitate from the aqueous phase which are collected and separated in an iron thickener prior to advancing the loaded strip liquor to the uranium product precipitation area.

In a batch precipitation process, consisting of three precipitation tanks, the loaded strip solution is precipitated in the uranium peroxide form ($UO_4.2H_2O$) using hydrogen peroxide to produce a yellowcake slurry.

Yellowcake slurry is de-watered using a thickener and pumped to a storage tank located in the drying and packing plant. The thickened uranium slurry is then pumped to a filter press for further de-watering, where the resulting paste-like slurry discharges into one of two yellowcake dryers. The dried uranium peroxide product is discharged from the dryers into a yellowcake hopper located in the packaging area. The uranium product is packed into top loaded 205L steel drums and then into sea-containers for road transport and export.

Solvent Extraction (Stage 1) Upgrades

For Stage 1, the existing SX processing facility will be recommissioned with various process plant modifications to resolve processing issues that were identified from the original operational period.

The major upgrades and modifications include:

- Upgrading the existing BLS pumps to boost the feed pressure to the injection wells to improve in-situ recovery performance;
- Modification of the weir arrangement between the BLS pre-settler pond and the main BLS pond to ensure retention and recovery of entrained organics;
- Installation of a new hyper-jet mixer and recovery system to demulsify and remove entrained organic from the SX raffinate;
- Installation of a new loaded organic tank and pumps prior to the mixer settlers to stabilise flows and reduce surging;
- Installation of a loaded strip filtration plant, comprising a sand filter and activated carbon columns, to improve the clarity of, and remove entrained organics from, the loaded strip liquor solution prior to uranium precipitation;
- Conversion of the batch precipitation tanks to continuous operation to meet the residence time requirements in Stage 2;
- Reconfiguring the Uranium Precipitation Thickener Underflow Pump discharge piping to enable thickener underflow recycling to the precipitation feed for seeding (at a rate of 3 recycle:1 precipitated solid) to promote crystal growth;
- Removing the existing vacuum dryers and supporting equipment and install a new yellowcake dewatering centrifuge, electrical kiln and off gas system within the existing drying building;
- Installation of a new ferric chloride storage and dosing system;
- Installation of a new containerised reverse osmosis (RO) plant to produce potable water for human consumption;
- Relocation and refurbishment of the liquid disposal pump; and
- Modifying the existing water treatment plant (WTP).

Ion Exchange (Stage 2) Expansion

Stage 2 will supplement the re-commissioned SX circuit with a new IX circuit and associated infrastructure required to process the additional PLS that will be generated from the wellfields, increasing production to 2Mlb/annum U_3O_8 equivalent. The additional facilities required for Stage 2 include:

- Install additional BLS and PLS pumps to meet the new duty;
- Install two parallel trains of NIMCIX adsorption and elution columns and supporting infrastructure capable of process 2,036m3/h of PLS;
- Re-purpose the sodium chlorate mixing and distribution system for sodium chloride mixing and distribution for IX elution;
- Install additional sulphuric acid and ferric chloride tanks;
- Upgrade reagent dosing and water distribution pumps;
- Install an additional RO Plant at the WTP to meet the clean water demand; and
- Install an additional WTP dedicated to wellfield conditioning, i.e. softening of groundwater.

The new IX circuit will consist of the following major equipment:

- Two NIMCIX adsorption columns;
- Two NIMCIX elution columns;
- Two resin conversion vessels;
- Two resin conditioning vessels;
- One resin regeneration vessel;
- One fresh resin hopper;
- Solution storage tanks; and
- Reagent mixing and distribution.

The two NIMCIX adsorption columns (6.2m in diameter, 25m tall) will operate in parallel to adsorb uranium from the PLS solution onto the resin. The loaded resin will be eluted using a two-step process. The converted resin is then transferred to the NIMCIX elution columns (2m in diameter, 25m tall) where the resin is eluted to recover the uranium to a low volume, concentrated eluate. This eluate reports to the existing, upgrade precipitation, drying and packaging systems. Spent resin is conditioned with acidic solution in a conditioning vessel before being transferred back to the adsorption column. Allowance has also been made for regeneration of resin periodically in a separate vessel, to control the build-up of silica on the resin.

Infrastructure

The infrastructure requirements for the Project comprise the main items listed below.

Power

Power supply for the existing Honeymoon site is via overhead transmission line from the national electrical grid at Broken Hill and Cockburn. The total installed power at the Honeymoon site in Stages 1 and 2 is 4.25 MW and 7.58 MW respectively. Total consumed power is 2.93 MW and 5.49 MW respectively.

Power supply infrastructure will be upgraded to meet the requirements of the Stage 1 and 2 facilities.

The two spare 11 kV feeders in the existing high voltage (HV) substation will be used to feed to two new motor control centres (MCC) for the new aspects of the processing plant.

Power to the wellfields at Honeymoon and Brooks Dam and to the existing plant substation is supplied from the existing feeders in the HV substation by underground and above ground cable. Power to the fresh water bore field is supplied by an 11kV overhead power line fed from the HV substation.

Emergency power to the existing Process Plant MCC and the Camp and Offices MCC 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 MCC No. 2.

Access

The Honeymoon site is accessible via the sealed Barrier Highway from Broken Hill or Adelaide followed by a 44 km unsealed public road (Mulyungarie Rd) and a 23 km privately maintained access road. Both public and private access roads require re-sheeting as part of the Stage 1 works.

Airstrip

The existing airstrip at the Honeymoon site will service the operation. Access to the aerodrome is via a dedicated access road from the village. The airstrip is designed for planes capable of carrying up to 50 passengers. The airstrip is in serviceable condition, requiring only refurbishment of the lighting system as part of the Stage 1 works.

Water

Raw water for the operation will be obtained from the existing ground water borefield and infrastructure.

Clean water for the process will be produced by bleeding BLS from the BLS pond to the WTP. A new containerised RO plant will be provided in Stage 2 to meet the additional clean water demand.

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 sources include:

- BLS bleed;
- RO plant brine;
- Grey water;
- Clean-up of spillage and rain water from reagents areas; and
- Water collected in the storm water pond.

Waste liquid will be collected in the liquid disposal pond and disposed of via the existing liquid disposal wells. The nominal liquid disposal rates are 11.8m³/h and 48.3m³/h in Stages 1 and 2 respectively. The existing disposal pump and pipeline are adequately sized for both scenarios and will be refurbished as part of the Stage 1 works.

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 Stage 1 execution to return the camp to a habitable condition prior to the commencement of site works. An additional laundry unit and new refrigeration unit will be installed.

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

Administration and Plant Buildings

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

- Administration office complex with offices for management, geology, production, operations, engineering, maintenance, safety and other personnel;
- Ablutions, change houses and crib facilities;
- Plant control room; and
- Drying 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 Stage 1. No additional facilities will be required for Stage 2.

Plant Workshop and Stores

The maintenance workshops will undertake general maintenance of the plant and minor servicing of mobile equipment fleet. Major repair work will be completed off-site in specialised workshops or on site with the assistance of specialist contractors. 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.

As part of the Stage 2 works, the existing pilot plant shed will be converted in the dedicated wellfield workshop and store.

Laboratory

The on-site laboratory will provide a number of 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 Stage 1 works.

A new X-ray fluorescence machine will be purchased in Stage 2.

Mobile Fleet

Mobile vehicle and equipment plant requirements have been assessed for both stages of the operation and a combination of refurbishment/servicing and purchasing of new vehicles has been costed for the Project.

Security

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.

Communication

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

Project Implementation

A detailed project execution plan, based on proven project delivery strategies, has been developed for the various phases of project implementation including engineering, procurement, construction, commissioning and operations ramp-up for Stages 1 and 2.

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. Under this contract strategy, performance, cost and schedule risk lies with Boss.

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 production schedule;
- Wellfields will be constructed, commissioned and conditioned ready for the commencement of ramp up 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, camp, building, office and laboratory refurbishment will be managed directly by the Owner's 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 week on, one week off roster.

Stage 1 Schedule

The project schedule from commencement of the Stage 1 through to completion (first production) is expected to be 12 months with the following timing for key design, procurement and construction activities as indicated on the implementation schedule:

• EPCM contractor award and commencement of design	Week 1
• Commencement of drying system procurement	Week 3
• Commencement of off-site fabrication	Week 19
• Mobilise EPCM contractor	Week 26
• Refurbishment works commence	Week 28
• Commence pre-commissioning	Week 46
• Practical completion	Week 52
• Start commissioning	Week 53
• First production	Week 59

The critical path for Stage 1 is the process design followed by the kiln manufacture, delivery and installation, electrical installation works and commissioning.

Stage 2 Schedule

The implementation of Stage 2 has been scheduled in accordance with the production profile to ensure start-up of the IX plant occurs in the second year of production.

The project schedule from commencement of Stage 2 through to completion (first production) is expected to be 20 months with the following timing for key design, procurement and construction activities as indicated on the implementation schedule:

• EPCM contractor award and commencement of design	Week 1
• Commencement of NIMCIX column procurement	Week 2
• Commencement of other major equipment procurement	Week 13
• Commencement of off-site fabrication	Week 35
• Mobilise EPCM contractor	Week 46
• Commence pre-commissioning	Week 79
• Practical Completion	Week 84
• Start Commissioning	Week 85
• First Production	Week 91

The critical path for Stage 2 is the process design followed by the manufacture, delivery, site lamination and installation of the NIMCIX columns, electrical installation works and commissioning.

Environmental and Permitting

The Project is an existing fully permitted operation, but currently in care and maintenance. A mining lease for the operation is in place and the Program for Environmental Protection and Remediation (**PEPR**) has been approved by the Department of State Development (**DSD**). In addition, the following licences and management plans are in place for the original 0.88Mlbs/annum U_3O_8 equivalent operation:

- Environmental Protection Agency (EPA) Licence;
- Native Title Agreements;
- Radiation Management Plan;
- Radioactive Waste Management Plan;
- Flora and Native Vegetation Management Plan;
- Mine Closure and Rehabilitation Plan; and
- Product export permits.

Native Title Agreements have been signed and endorsed by local Indigenous communities. With the existing permitting in place, production can commence at Honeymoon within a very short lead time, though will require the following steps to be undertaken:

- Formal restart notification to be sent to the DSD;
- Amendments to the existing PEPR including updated environmental management plan;
- Submission of formal restart plan;

- Radiation Management Plan updates;
- Radioactive Waste Management Plan updates;
- Site inspection; and
- Payment of DSD security bond and EPA licensing payment.

With the planned expansion to 2Mlbs/annum U_3O_8 equivalent operation using the existing operational areas (i.e. within the existing mining lease), a similar approach as described for the restart above will be followed, and will also require new baseline studies for the PEPR (particularly in the area of hydrogeology) and further updates to the Public Environment Report and the Mining Lease Proposal. Boss is currently undertaking the necessary baseline studies, assessments and updating the management plans so that the existing plant can be expanded to 2Mlbs/annum U_3O_8 equivalent based on the deposits contained within the existing ML6109.

Capital Cost Estimate

The project capital cost estimates developed for the FS 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.

These estimates include all the necessary costs associated with process engineering, 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 and have a base date of September quarter 2019 with an overall contingency of 10% and an accuracy level of +/- 10-15%.

Stage 1

The capital cost estimate for Stage 1 is summarised in Table 11.

Table 11: Stage 1 Capital Cost Estimate

AREA	Total Cost (A$'000)
Direct Costs	
000 General & Refurbishment Costs	2,089
001-07 Plant	4,777
070 Wellfields	3,308

200 Earthworks	35
370 Power Reticulation (Plant only)[13]	2,552
430-480 Infrastructure	1,603
499 Plant Piping	1,702
Sub-total	16,066
Indirect Costs	
490 Owners Costs	6,416
500 Project Management	983
501-04 Engineering, Supervision & Construction Facilities	5,141
505 Commissioning	124
570 Mobile Equipment	933
602 Initial Fills	2,073
603 Spare Parts	381
840 Mobilisation / Demobilisation / Indirect Costs	2,586
Sub-total	18,637
Total	**34,703**

Stage 2

The capital cost estimate for Stage 2 is summarised in Table 12.

Table 12: Stage 2 Capital Cost Estimate

AREA	Total Cost (A$'000)
001-08 Plant	20,413
070 Wellfields	76
200 Earthworks & Fencing	17
370 Power Reticulation (Plant only)[14]	3,363
441-60 Infrastructure	689
499 Plant Piping	5,551
Sub-total	30,109
500 Project Management	1,917
501-04 Engineering, Supervision & Construction Facilities	11,224
505 Commissioning	771
570 Mobile Equipment	2,083
602 Initial Fills	8,211
603 Spare Parts	417
840 Mobilisation / Demobilisation / Indirect Costs	3,506
Sub-total	28,129
Total	**58,238**

[13] *Excludes offsite power provider upgrades*
[14] *Excludes offsite power provider upgrades*

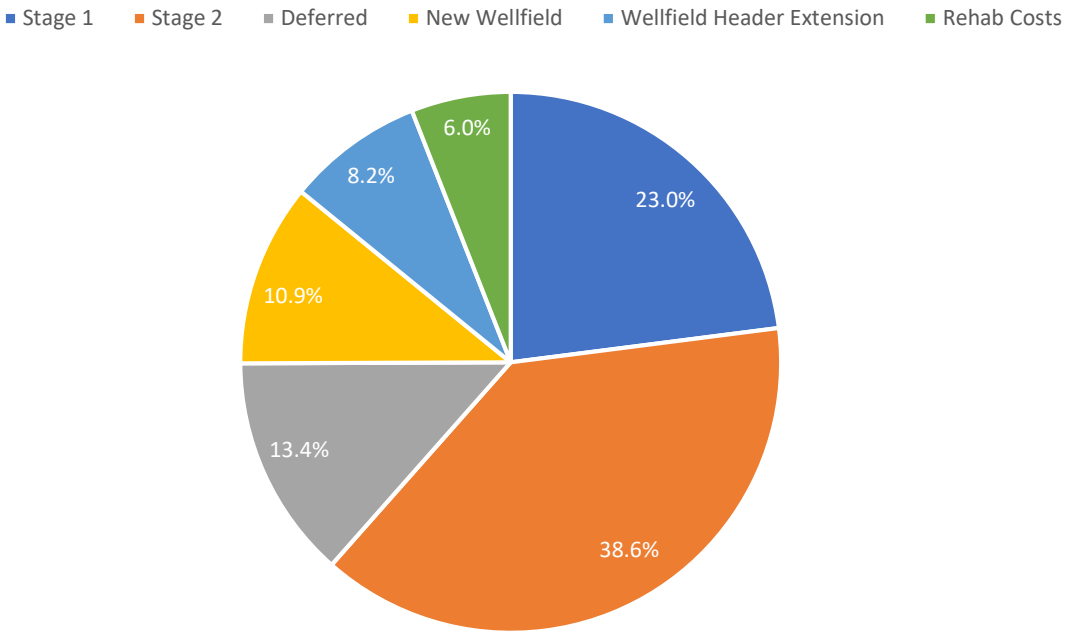


Figure 8: Capital expenditure % breakdown

Operating Cost Estimate

Operating costs were developed from first principles based on the testwork, steady state mass balances, process design criteria, mechanical equipment lists and the capital costs. Some historical cost data was utilised to generate allowances for existing areas of plant and general costs.

Operating costs were broken down into their fixed and variable components to accommodate cash flow scheduling. Variable costs were linked to total PLS flow rate or uranium production. A 12-year LOM has been considered in the development of the operating costs. Stage 1 duration is 18 months, followed by 126 months of Stage 2 operation.

The estimates are presented in Australian dollars and have a base date of September quarter 2019 with an accuracy level of +/- 10-15%.

Stage 1

The operating cost for Stage 1 solvent extraction operation at a nominal production rate of 542,752 lb/annum U_3O_8 is summarised in Table 13.

Table 13: Stage 1 Operating Cost Estimate

Cost Category	Total Cost A$'000 per annum	Unit Cost A$ per lb U_3O_8	Fixed Cost A$'000 per annum	Variable Cost A$ per lb U_3O_8	Variable Cost A$ per m^3 PLS	% of Total
Labour	11,817	21.67	11,816	-	-	44%
Power	3,380	6.20	3,216	0.30	-	13%
Reagents & Consumables	4,993	9.16	448	8.34	0.42	19%
Maintenance	2,980	5.47	2,980	-	-	11%
Laboratory	679	1.25	679	-	-	3%
General & Administration	3,134	5.75	3,134	-	-	12%
Sub-Total	**26,983**	**49.49**	**22,273**	**8.64**	**0.42**	**100%**

These costs exclude the following:

- Wellfield development, conditioning and operating costs;
- Sustaining and deferred capital costs;
- Corporate costs; and
- Product marketing, shipping and royalties.

Stage 2

The operating cost for Stage 2 solvent extraction and ion exchange operation at a nominal production rate of 2,000,130 lb/a U_3O_8 is summarised in Table 14.

Table 14: Stage 2 Operating Cost Estimate

Cost Category	Total Cost A$'000 per annum	Unit Cost A$ per lb U_3O_8	Fixed Cost A$'000 per annum	Variable Cost A$ per lb U_3O_8	Variable Cost A$ per m^3 PLS	% of Total
Labour	10,591	7.65	10,591	-	-	28%
Power	5,004	3.61	4,761	0.18	-	13%
Reagents & Consumables	14,351	10.36	4,520	10.04	0.39	38%
Maintenance	4,592	3.32	4,592	-	-	12%
Laboratory	586	0.42	586	-	-	2%
General & Administration	3,046	2.20	3,046	-	-	8%
Sub-Total	**38,170**	**27.56**	**28,096**	**10.22**	**0.39**	**100%**

These costs exclude the following:

- Wellfield development, conditioning and operating costs;
- Sustaining and deferred capital costs;
- Corporate costs; and
- Product marketing, shipping and royalties.

Wellfields

The operating costs for the wellfields are summarised in Table 15.

Table 15: Wellfield Operating Cost Estimate

Cost Category	Total Cost A$'000 per annum	Unit Cost A$ per lb U_3O_8	Fixed Cost A$'000 per annum	Variable Cost A$ per lb U_3O_8	Variable Cost A$ per m3 PLS	% of Total
Labour	1,110	0.86	1,110	-	-	38%
Power	1,330	1.03	1,330	0.01	-	45%
Reagents & Consumables	43	0.03	0	0.03	-	1%
Maintenance	378	0.29	378	-	-	13%
General & Administration	90	0.07	90	-	-	3%
Sub-Total	**2,951**	**2.28**	**2,908**	**0.04**	**0.00**	**100%**

This estimate includes costs associated with the conditioning and operation of the wellfields, excluding the following:

- Wellfield development costs;
- Sustaining and deferred capital costs;
- All general and administration, labour, laboratory, mobile equipment fuel and maintenance costs accounted for within the Stage 1 and 2 operating cost estimates; and
- All power, maintenance, reagents and consumable costs associated with the processing facility.

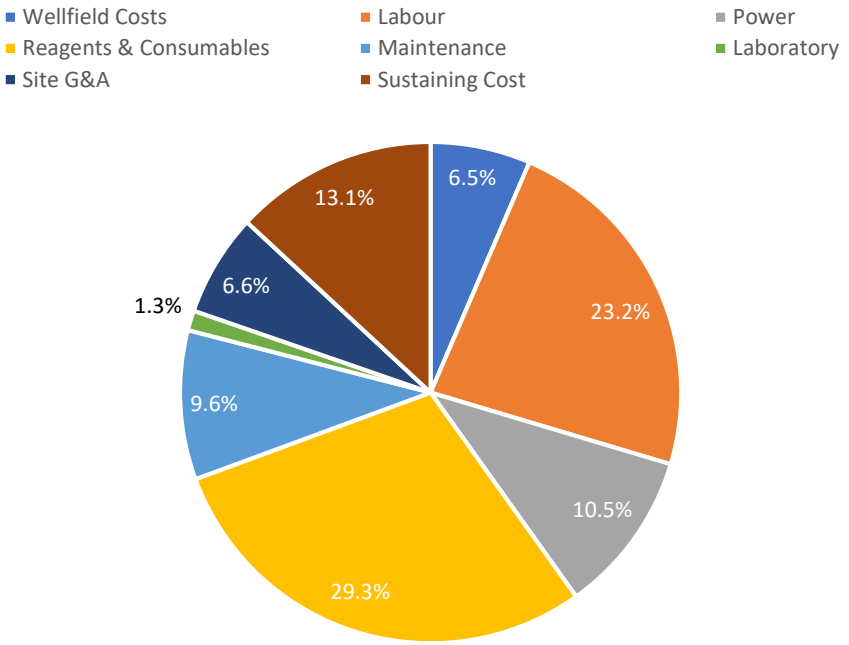


Figure 9: Operating expenditure % breakdown

Sustaining and Deferred Capital

Sustaining and deferred capital cost estimates have accounted for expenditure required to maintain production in accordance with the base case production schedule.

The estimates are presented in Australian dollars and have a base date of September quarter 2019 with an accuracy level of +/- 10-15%.

Sustaining Capital

Sustaining capital expenditure items for the Project include:

- General sustaining capital required to replace equipment reaching the end of its useful life;
- Re-sheeting of the public and private sections of the site access road and the airstrip;
- Construction of additional gypsum storage ponds;
- Refurbishment of existing wellfield equipment;
- Relocation of wellfield equipment;
- Re-screening of existing wellfields; and
- Drilling, casing and screening of new wellfields.

Costs for each of these items are summarised in Table 16.

Table 16: Sustaining Cost Estimate Summary

Cost Category	Total Cost A$'000
General Sustaining Capital - Stage 1	589
General Sustaining Capital - Stage 2	731
Wellfield Sustaining Capital (per wellfield)	41
Access Road and Airstrip Refurbishment	1,064
Additional Gypsum Pond	124
Refurbished Wellfield Equipment	830
Relocated Wellfield Equipment	651
Existing Wellfield Re-screening	451
New Wellfield Drilling Casing and Screening	1,443

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 17.

Table 17: Sustaining Capital Costs per annum (A$'000)

Period	General Sustaining Capital - Stage 1	General Sustaining Capital - Stage 2	Wellfield Sustaining Capital	Access Road and Airstrip Refurbishment	Additional Gypsum Pond	Refurbished Wellfield Equipment	Relocated Wellfield Equipment	Existing Wellfield Re-screening	New Wellfield Drilling Casing and Screening	TOTAL
Year 1	589	0	64	0	0	0	0	0	1,443	**2,097**
Year 2	295	366	122	0	249	1,661	651	1,353	1,443	**6,139**
Year 3	0	731	129	0	373	0	651	0	2,886	**4,771**
Year 4	0	731	200	0	249	830	1,952	902	2,886	**7,751**
Year 5	0	731	271	0	249	0	1,302	0	8,659	**11,212**
Year 6	0	731	342	0	249	0	2,603	902	2,886	**7,714**
Year 7	0	731	366	1,064	249	0	3,254	451	5,773	**11,888**
Year 8	0	731	345	0	373	0	1,952	451	2,886	**6,740**
Year 9	0	731	328	0	249	0	3,905	1,804	2,886	**9,099**
Year 10	0	731	359	0	249	0	3,905	2,255	2,886	**4,767**
Year 11	0	731	406	0	249	0	4,556	3,157	0	**2,097**
Year 12	0	731	481	0	249	0	1,952	1,353	0	**6,139**
TOTAL	**884**	**7,679**	**3,414**	**1,064**	**2,987**	**2,491**	**26,684**	**12,628**	**34,637**	**92,467**

Deferred Capital

Deferred capital items for the Project include:

- New wellfield house and filter skid supply, installation and commissioning as required by the production schedule;
- Wellfield header extensions including the BLS, PLS and ground water headers as required by the production schedule; and
- Design, supply, installation and commissioning of a third NIMCIX column train.

Costs for each of these items are summarised in Table 18.

Table 18: Deferred Capital Cost Summary

Cost Category	Total Cost A$'000
New Wellfield Equipment	2,066
Wellfield Header Extension	237
Third NIMCIX Column Train	20,264

Deferred capital costs are applied throughout the LOM in accordance with the production schedule. The annual deferred capital costs are summarised in Table 19.

Table 19: Deferred Capital Costs per annum (A$'000)

Period	New Wellfield Equipment	Wellfield Header Extension	Third NIMCIX Column Train	TOTAL
Year 1	2,066	237	0	**2,303**
Year 2	2,066	474	0	**2,540**
Year 3	2,066	474	0	**2,540**
Year 4	0	712	13,509	**14,221**
Year 5	8,263	1,423	6,755	**16,440**
Year 6	0	949	0	**949**
Year 7	0	1,186	0	**1,186**
Year 8	0	712	0	**712**
Year 9	0	1,423	0	**1,423**
Year 10	2,066	1,660	0	**3,726**
Year 11	0	1,660	0	**1,660**
Year 12	0	712	0	**712**
TOTAL	**16,525**	**11,622**	**20,264**	**48,411**

Market Analysis

The uranium market is subject to long cycles and appears to be on the cusp of recovery after a long period of low prices. The macro outlook is very positive, but the timing of the recovery has been affected by trade tensions which have impacted all commodity markets.

On the macroeconomic level, the 2019 WNA Nuclear Fuel Report launched in September 2019, revised projections for nuclear generating capacity growth have been upwards for the first time in eight years, following the introduction of more favourable policies in several countries.

The Report's Upper and Reference Scenarios show global nuclear power capacities growing over the period to 2040 at a faster rate than at any time since 1990. Over this period nuclear 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. Since 2015, annual primary uranium production has decreased more than 43Mlbs U_3O_8 and both Cameco and Kazatomprom have reaffirmed their commitment to supplier discipline.

Uranium is not traded (in material quantities) on an exchange, like other commodities. 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$25/lb U_3O_8 while the current long -term price indicator is US$33/lb U_3O_8. 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. Future deliveries would be priced at the base price escalated from an agreed date to the date of each delivery. Uranium is also delivered under market related term contracts; in the current market the delivery price under these contracts is based on the prevailing spot price indicator at the time of delivery.

Uranium for near term delivery is available at spot prices. Utilities and suppliers are both buyers and sellers in the spot market, depending on market conditions, but in recent years the majority of transactions have involved intermediaries. Utilities, the end-users of uranium, have historically bought between 70% to 80% of their uranium under long-term contracts from suppliers with any uncovered requirements being met by the spot market. The uranium market therefore primarily quotes two prices, the long-term contract price indicator and the spot price indicator.

Figure 10 shows the historical long-term uranium price indicator and the historical spot price indicator back to 2010.

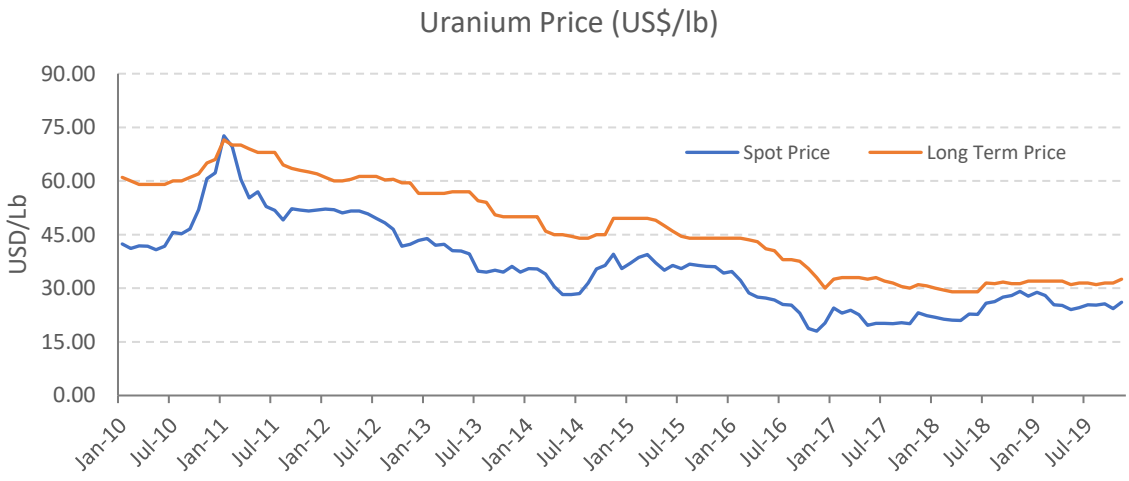


***Figure 10**: U_3O_8 long-term contract price and U_3O_8 spot price, sourced from Cameco*

Figure 10 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 deliveries years indicated in the long term contract. Since Fukushima, 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 25%, based on the data presented over the last 10 years.

Figure 10 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.

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 offer 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 its strategy is to enter into long-term base escalated contracts once term prices reach an acceptable level. Once this requirement is met further contracts will be layered in to optimise average sales price in an anticipated rising market.

The WNA forecasts a gap between primary supply and demand of just over 40Mlbs U_3O_8 in 2019. For the first time since the early 2000's, there is consensus in the industry from utilities as well as suppliers that supply from restarts and new mines is needed in the early 2020's to ensure long term security of supply and that current term price levels will not support that investment. This is further supported by current analysts who forecast a rise in the spot price. 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.

To arrive at a base case for this study, a historical analysis of the relationship between long term and spot price indicators since 1996 was carried out 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[15] confirming 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 Boss's forecasted price assumptions ascertained it is reasonable to expect long-term contract prices will trade at a premium to spot prices in future. Boss then reviewed an unbiased cross section of industry spot price forecasts which resulted in an average long-term price of $55/lb once the premium had been applied.

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

Accordingly, Boss' strategy, consistent with industry practice, is to predominantly enter into long-term base escalated contracts (which ordinarily include an US inflation-based escalation factor) on a rolling basis.

Based on present forecasts, Boss considers it reasonable that the commencement of construction could commence in 2021 and has the ability to enter into long-term base escalated contracts at a price of US$55/lb in 2023 with first deliveries under those contracts in 2026. The Boss model includes the conservative assumption that all contracts prior to 2026 will be priced at the spot price indicator at the time of delivery and be delivered under market related term contracts or spot contracts. Boss has assumed that none of the sales between start-up and 2025 will include a premium or be based on the mid-term price indicator. These assumptions result in an average LOM price for sales of US$50/lb.

Although Boss has used a price of US$50/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, US$45/lb, US$55/lb and US$60/lb. Further sensitivity to the U_3O_8 price is shown at Figure 13, which shows impact to pre-tax NPV with a 20% movement (up and down) to U_3O_8 price.

As the lead time to bring a new mine to production is significant (seven to 10 years from discovery to commissioning on average) prices would have to rise significantly in 2020 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 early 2020's and a potential overshoot in prices before they settle at a sustainable level.

Cameco/UxC estimate that cumulative uncovered requirements are about 1.9 billion pounds to the end of 2035[16]. 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 the Project, as Honeymoon:

- Has costs closer to restart production than to the average cost of new mines; and
- Can be brought into production within a year of taking the decision to move forward.

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

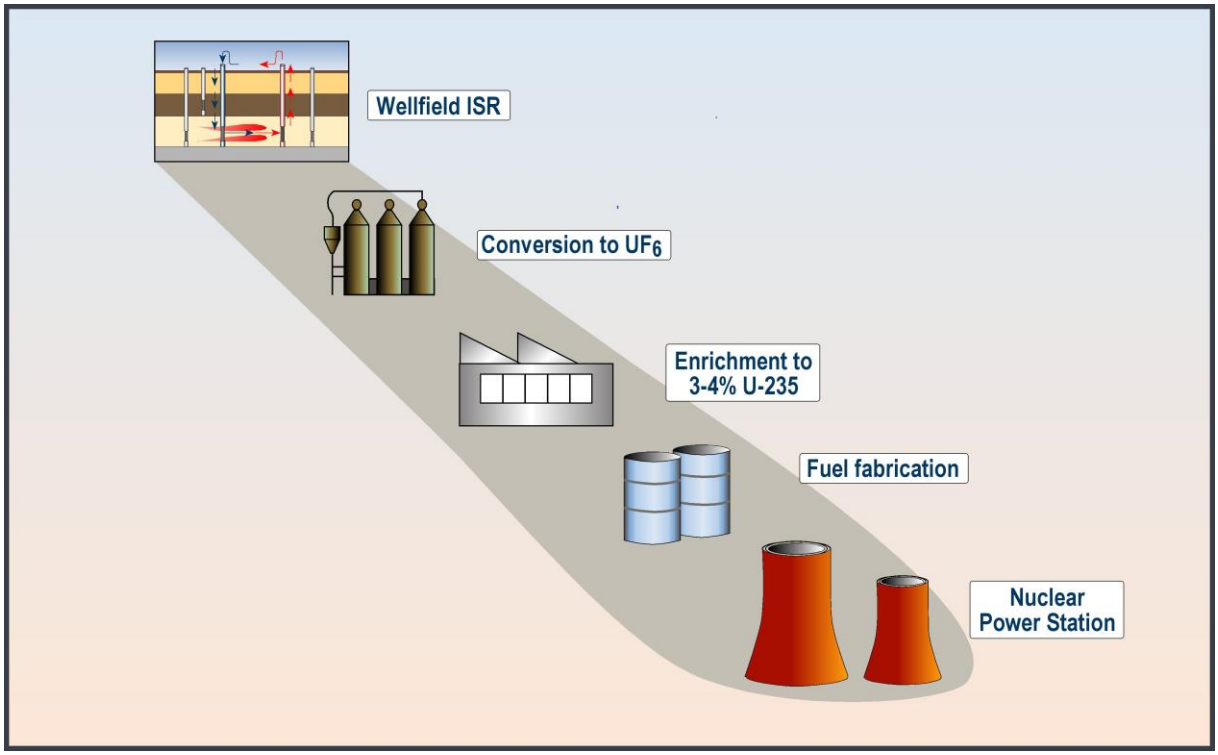


Figure 11: Honeymoon and the Front End of the Fuel Cycle

Uranium mining is the first stage of the front end of the fuel cycle. Uranium from the Honeymoon mine will be transported to Adelaide from where it will be shipped to a Conversion Facility and stored until it is purchased by a customer. Once the uranium has been purchased by a nuclear utility, it will undergo conversion, enrichment and then be fabricated into fuel and used to generate electricity in nuclear power stations. All uranium from the Project is solely for use for the generation of electricity in civil nuclear reactors. Throughout all stages of the fuel cycle, uranium from Honeymoon will be subject to the provisions of the Nuclear Non-Proliferation Treaty and all applicable Australian bilateral safeguards treaties with customer countries.

Conversion plants are operating commercially in the USA, Canada, France, Russia and China. The principal destinations for the uranium from the Honeymoon mine will be the Western conversion facilities: Cameco's facility in Canada, ORANO's facilities in France and Converdyn' s facility in the US.

It was originally envisaged in the PFS that Honeymoon's final product would be uranyl peroxide; discussions with conversion facilities and operating ISR operations led to a decision that further calcination and production of U3O8 would significantly enhance the specification of Honeymoon's final product.

Financial Analysis

Honeymoon has been evaluated at a project level on a discounted cashflow basis with key inputs from the FS incorporating capital costs, operating costs, key financial assumptions and a 12-year LOM. The project evaluation date is at the decision to execute, which is 1 January 2021. Table 20 shows the key financial assumptions that were used as the base case in the financial evaluation to determine Project values and rates of return.

Table 20: Key Financial Assumptions

Financial assumption	Unit	Value
Uranium Price	US$	50/lb U_3O_8
Foreign Exchange Rate	A$:US$	0.68
Discount rate	%	8%
Tax rate	%	30%
Accumulated Tax Losses	A$M	A$79.6
Government Royalty	%	5%
Native Title Royalty	%	1.5%
Life of Mine (LOM)	Years	12

The financial analysis was undertaken using an average U_3O_8 price of US$50/lb and a flat exchange rate of A$1:US$0.68 for the LOM. A real, post-tax discount rate of 8% has been applied by the Company to calculate the NPV. In addition, government royalties (5%) and native title royalties (1.5%) have also been included. Table 21 shows a summary of the financial outcomes under the base case.

Table 21: Summary of Financial Outcomes

Measure	Unit	A$M	US$M[4]
Uranium Produced (Stage 1+2 over LOM)	Mlbs	20.74	
Gross Revenue (over LOM)	$M	1,480	1,006
Free Cash flow (Pre-tax)	$M	492	334
Free Cash flow (Post-tax)	$M	365	248
EBITDA margin (average over LOM)	%	50.11%	
IRR (Pre-tax)	%	42.90%	
IRR (Post-tax)	%	33.29%	
NPV 8% (Pre-tax)[1]	$M	240	163
NPV 8% (Post-tax)[1]	$M	166	113
Stage 1 & 2 Capital Cost	$M	92.9	63.2
AISC[2]	$/lb U_3O_8	40.2	27.4
AIC[3]	$/lb U_3O_8	47.5	32.3
Total Project Payback (post tax, after production commences)	years	4.5	

1. *8% discount rate applied*
2. *AISC = wellfield operating, processing, site G&A, freight, marketing, royalties and sustaining capital expenditure*
3. *AIC = AISC + development and deferred capital expenditure*
4. *A$:US$ exchange rate A$1:US$0.68*

The summary of financial outcomes is based on the U_3O_8 production profile as shown in Figure 12.

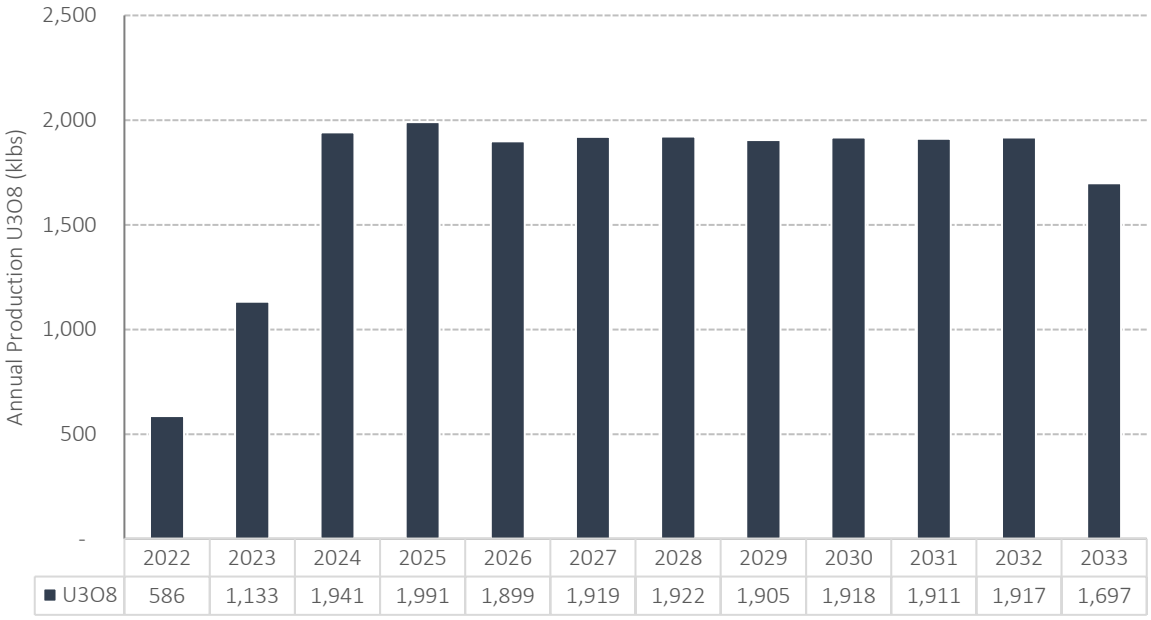


Figure 12: U_3O_8 production profile over LOM

Sensitivity Analysis

Sensitivity was completed on a number of key inputs to identify areas of potential financial variance. The base case financial analysis was undertaken using a U_3O_8 price of US$50/lb. The Project is highly leveraged to the U_3O_8 price and Table 22 displays the potential financial outcomes at U_3O_8 prices of US$40/lb, US$45/lb, US$50/lb, US$55/lb and US$60/lb.

Table 22: Key Financial Summary at U_3O_8 prices of US$40/lb, US$45/lb, US$50/lb, US$55/lb and US$60/lb

Financial Metric	Unit	US$40/lb		US$45/lb		US$50/lb		US$55/lb		US$60/lb	
		A$	US$	A$	US$	A$	US$	A$	US$	A$	US$
Revenue	$M	1,196	813	1,338	910	1,480	1,006	1,622	1,103	1,764	1,200
EBITDA	$M	477	324	609	414	742	504	874	594	1,007	685
Free Cash flow (Pre-tax)	$M	227	154	359	244	492	334	624	424	756	514
Free Cash flow (Post-tax)	$M	175	119	272	185	365	248	458	311	551	375
EBITDA margin	%	39.86%		45.53%		50.11%		53.89%		57.06%	
IRR (Pre-tax)	%	22.10%		32.80%		42.90%		52.63%		62.11%	
IRR (Post-tax)	%	17.25%		25.57%		33.29%		40.67%		47.97%	
NPV 8% (Pre-tax)	$M	88	60	164	112	240	163	316	215	392	266
NPV 8% (Post-tax)	$M	57	39	113	77	166	113	220	149	273	185
NPV 6% (Pre-tax)	$M	113	77	200	136	286	194	372	253	459	312
NPV 6% (Post-tax)	$M	78	53	142	96	202	138	263	179	323	220
AISC[1]	$/lb	39.3	26.7	39.7	27.0	40.2	27.3	40.7	27.7	41.1	27.9
AIC[2]	$/lb	46.6	31.7	47.0	32.0	47.5	32.3	47.9	32.6	48.4	32.9
Total Project Payback	yrs	9.3		6.0		4.5		3.8		3.0	

1. *AISC = wellfield operating, processing, site G&A, freight, marketing, royalties and sustaining capital expenditure*
2. *AIC = AISC + development and deferred capital expenditure*

The base case pre-tax NPV is A$240 million. The sensitivity of the Project pre-tax NPV to key input changes with a +/- 20% variation applied is summarised in Figure 13 as is a variation to the discount rate of +/- 2%.

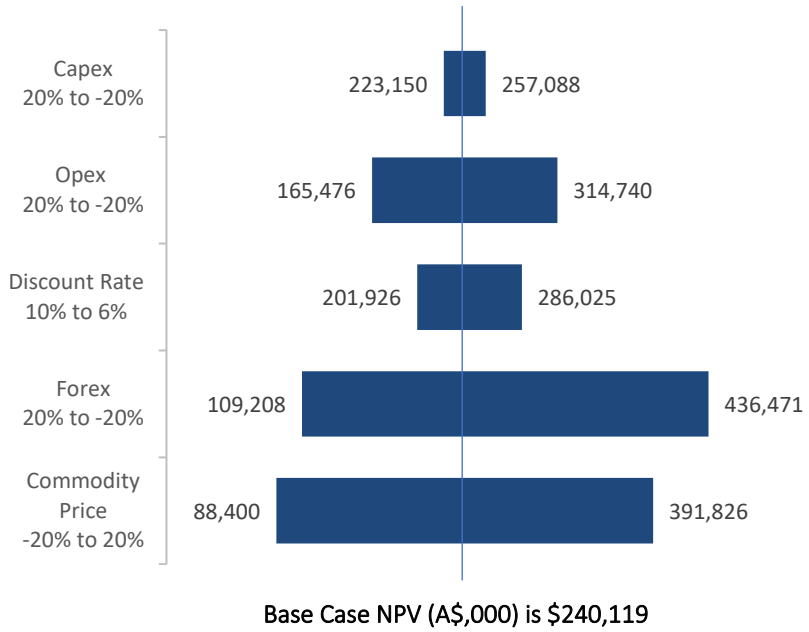


Figure 13: Sensitivity analysis (A$'000) on base case NPV

Figure 14 show the forecast pre-tax net annual cashflows and the cumulative cash balance of the Company over the LOM at a U_3O_8 price of US$50/lb.

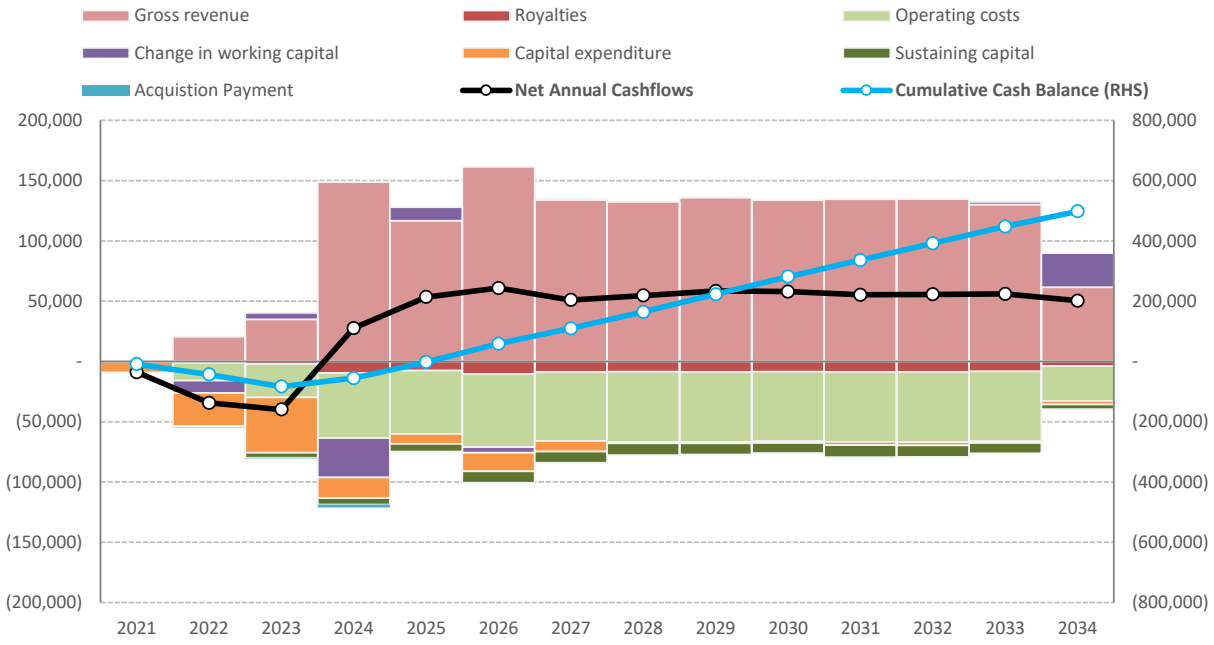


Figure 14: Cashflows and Cumulative Cash Balance (A$'000's) over LOM (pre-tax) at a U_3O_8 price of US$50/lb

Figures 15, 16 and 17 show the key financial, return and cost metrics over the LOM at a U_3O_8 prices of US$40/lb, US$45/lb, US$50/lb, US$55/lb and US$60/lb.

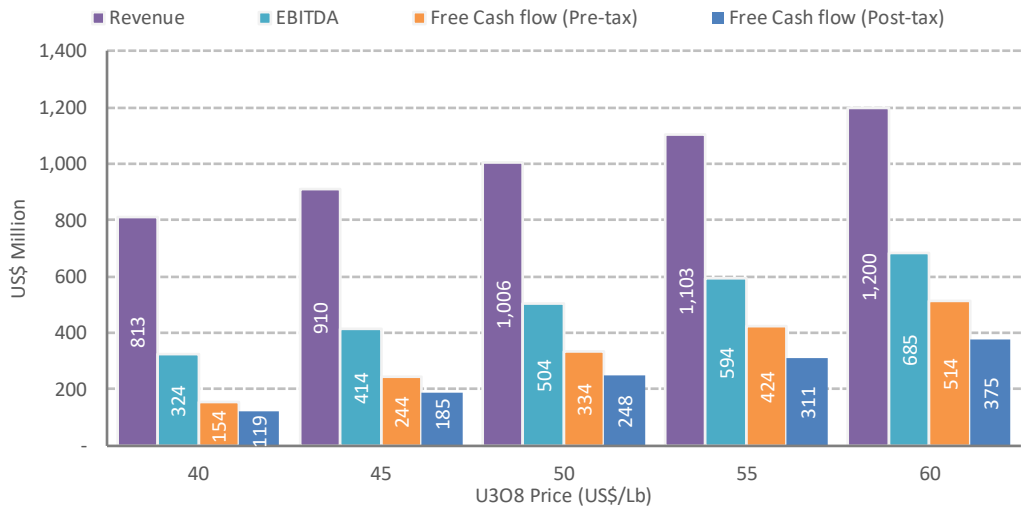


Figure 15: Key financial metrics at U_3O_8 prices of US$40/lb, US$45/lb, US$50/lb, US$55/lb and US$60/lb

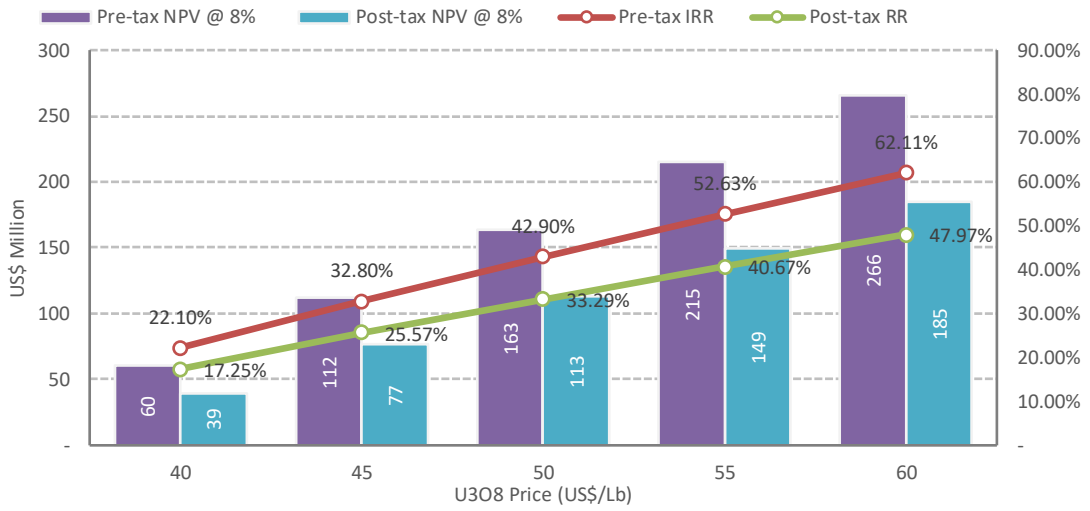


Figure 16: Key return metrics at U_3O_8 prices of US$40/lb, US$45/lb, US$50/lb, US$55/lb and US$60/lb

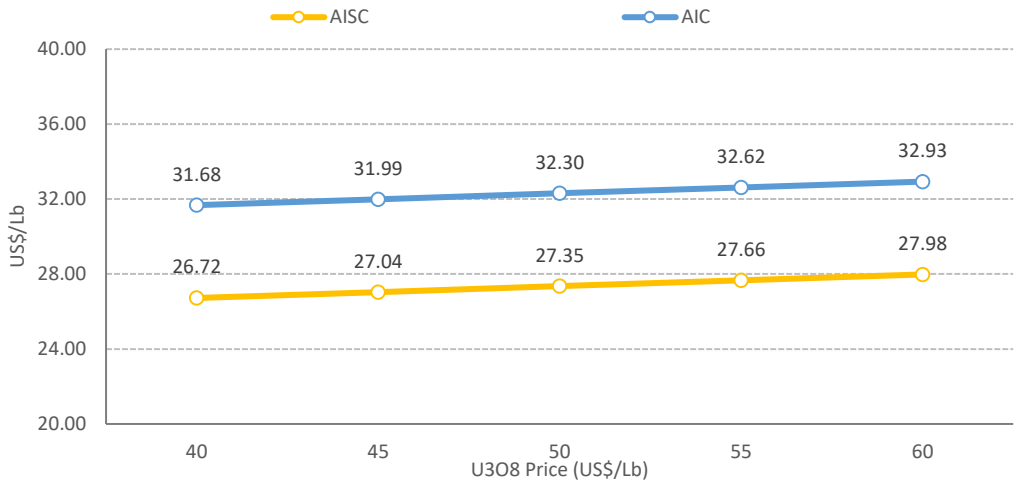


Figure 17: Key cost metrics at U_3O_8 prices of US$40/lb, US$45/lb, US$50/lb, US$55/lb and US$60/lb

Future Work Programs

Since Boss Resources' acquisition of Honeymoon in December 2015, it has progressively de-risked the Project both technically and commercially, and executed programs of work required for re-starting production, all of which have culminated in the completion of the FS. The Company is now in a position to further pursue financing and off-take discussions in order to make a decision to proceed to mine, assuming a specified global uranium price has been achieved to satisfy the targeted IRR and NPV return so as to maximise shareholder value.

Boss' will focus on operational readiness whilst continuing its high-quality care and maintenance program with environmental monitoring, to ensure the plant can be recommissioned in a short period of time. Low-cost and non-invasive geophysical exploration techniques will continue to meet tenement commitments, allowing for smaller, cheaper and more focused exploration drilling programs when the uranium market improves.

Using the results from the planned exploration, a decision will be made as to the preferred source (or sources) of material for the Stage 3 which will look at options to ramp up production capacity from 2Mlb/annum to in excess of 3Mlb/annum U_3O_8 equivalent as endorsed by Federal EPIP Act approvals. This will be investigated by the Owner's Team in a lead up to the execution of the Stage 1 and 2 activities, but will only be finalised after start-up when the integrated operation has been fully validated.

From a technical perspective, Boss has also identified several cost reduction possibilities and process improvements to capital and operating expenditure. Such future work programs include the following:

Alternative energy sources and energy efficiency programs

The Honeymoon plant and wellfield operates at a fairly 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 (or other sources of renewable energy) to supplement the power demand and to asses if a significant cost saving can be realised.

With the completion of the FS providing an understanding of the power load in various unit operations a power optimisation study will be completed that will look at alternate energy sources for the kiln and IX solution heating demands which are the heaviest users on site. 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. With this in mind, lower grade wellfields or wells reaching the end of their useful life may be operated in such a way that the PLS is re-fortified with oxidant and used as a feed solution for another wellfield, essentially operating the wellfields in series. This is known as solution stacking. The 2017 FLT operated a solution stacking trial during the operation with nett uranium loss seen over the short operating time; however, with longer operating time this trend should be reversed. A larger scale solution stacking trial is planned during the Stage 1 restart and, if successful, can be readily integrated into the operation on a routine basis. Solution stacking can also be operated on a sporadic basis, depending on plant capacity and power availability. The need for the third NIMCIX IX train in Year 5 would also be negated if solution stacking was confirmed as a viable process.

Wellfield configurations

Alternative wellfield configurations are being reviewed for applicability to the Honeymoon wellfield environment. Boss are reviewing worldwide best practice in ISR to ensure the wellfield deployment is fit for purpose and maximises the value of wellfield development capital invested.

Alternative oxidants

ANSTO has been reviewing the effectiveness of alternative oxidants which may reduce the cost of ferric iron regeneration and/or improve the uranium leaching rate by providing an oxidant with greater stability in the lixiviant. These tests are ongoing at the date of this report and as results become available, they will be considered as potential addendums to the FS.

Additional leach recovery rate improvement additives are being reviewed and tested at bench scale. Any marked improvement in leach rate observed will require the economics of the chemistry change to be assessed for quantifiable advantage.

Stage 1 SX operation

Ongoing work at ANSTO is aimed at reducing solvent inventory and impurity transfer in loaded solvent. The contact time in the currently installed Uranium Pulsed Columns (UPC) at Honeymoon in in the order of 8 to 10 hours. Testwork has shown that the residence time required for uranium loading on the solvent is less than 1 minute with iron loading being the major species loaded on the solvent from 2 minutes to 30 minutes of contact. ANSTO and Boss are preparing to operate a pilot trial designed to replace the mixing function of the pulsed columns with in-pipe mixers and then utilise the existing UPCs as vertical settlers. This will introduce a small amount of additional capital but will allow a significant reduction in solvent inventory, offsetting the required capital. Additional benefits are foreseen in reagent consumption in stripping and precipitation.

Following completion of the solvent extraction reagent blend optimisation (included in FS) ANSTO are continuing to have success in optimising the scrubbing and stripping of the loaded solvent to maximise uranium concentration in the loaded strip solution and minimise impurity transfer. Once continuous testing has been completed to Boss' satisfaction, there is the potential to remove the iron precipitation and solids removal portions of the precipitation circuit thereby reducing capital cost, operating cost and the potential for uranium loss from the circuit.

Resource expansion

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 two contexts:

- Near-mine extensions that may be accessed with the infrastructure (trunk lines, power distribution) on the existing mine lease; and
- 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 is developing a model for spoke and hub development, incorporating plant upgrade requirements to increase IX elution, drying and packaging capacity in order to understand the maximum economic distance from the main facility resources may be accessed and the mineralisation requirements to support a spoke development.

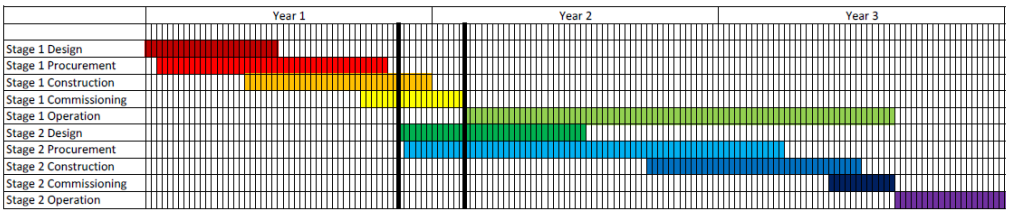
Competent Persons Statement

Mineral Resources

The information in this report that relates to the Mineral Resources on the Honeymoon Project were initially reported by the Company to ASX 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.

Appendix 1: Material Assumptions used in the Feasibility Study

Criteria	Commentary
Status of Study	The information and production targets presented here are based on a FS. The Company advises that the FS uses a portion of Inferred Resources as follows; in the first 3 years (1%), in the first 5 years (7%) and over the 12-year life of mine (18%). The Company confirms that the use of Inferred Resources is not a determining factor to the Honeymoon Project's 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 FS has been prepared with an overall contingency of 10% and an accuracy level of +/- 10%-15%. There is no certainty that the conclusions of the FS will be realised.
Mineral Resource Estimate Supporting Production Targets	The FS referred to in this announcement is based on a JORC Compliant Mineral Resources Estimate. The detailed assumptions regarding the JORC Compliant 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 FS.
Classification	The production targets referred to in this announcement are based on Mineral Resources which are classified as 82% Measured and Indicated and 18% Inferred over the 12-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 Field leach Trail undertaken by Boss Resources 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 500 ppm 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 Boss 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 a FS level of accuracy (+/- 10%-15%). The estimates have a base date of September quarter 2019 and an overall average contingency of 10% has been included in the estimate. Capital costs have been estimated for Stage 1 (US$23.6M) and Stage 2 (US$39.6M). 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, including design, supply, installation and commissioning of a third NIMCIX column train, 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 a Feasibility Study level of accuracy (+/- 10%-15%). The estimates have a base date of September quarter 2019. 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. Operating costs have been estimated for Stage 1 and Stage 2.
Schedule	The Project development schedule indicates that the Stage 1 execution could start in Q1 2021 and be completed within 58 weeks allowing the wellfield and plant start-up in Q1 2022, provided funding can be secured by Q4 2020. Stage 2 execution could start in Q4 2021 and be completed within 91 weeks, with 2.0Mlb production starting in Q3 2023. 
Infrastructure	The majority of the required infrastructure already exists, including the 0.88Mlb/annum SX plant.

	The Honeymoon SX 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.
Environmental	The project already has an approved EIS granted under the Environment Protection (Impact of Proposals) (EPIP) Act 1974. The Current EPIP approvals allow for production rate of up to 3.3Mlbs/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, a historical analysis of the relationship between long term and spot price indicators since 1996 was carried out 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 confirming that that they expected the 'continued contango relationship to exist between the spot and long -term prices well into the 2030s'. On this basis Boss's forecasted price assumptions ascertained it is reasonable to expect long-term contract prices will trade at a premium to spot prices in future. Boss then reviewed an unbiased cross section of industry spot price forecasts which resulted in an average long-term price of $55/lb once the premium had been applied. Accordingly, Boss' strategy, consistent with industry practice, is to predominantly enter into long-term base escalated contracts (which ordinarily include an US inflation-based escalation factor) on a rolling basis. Based on present forecasts, Boss considers it reasonable that the commencement of construction could commence in 2021 and has the ability to enter into long-term base escalated contracts at a price of US$55/lb in 2023 with first deliveries under those contracts in 2026. The Boss model includes the conservative assumption that all contracts prior to 2026 will be priced at the spot price indicator at the time of delivery and be delivered under market related term contracts or spot contracts. Boss has assumed that none of the sales between start-up and 2025 will include a premium or be based on the mid-term price indicator. These assumptions result in an average LOM price for sales of US$50/lb.
Exchange Rate	Estimates in this announcement are presented in US$ unless otherwise stated. An exchange rate of A$1:US$0.68 was used.

Economic Parameters	The FS has been completed with a +/- 10%-15% accuracy. 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. The FS 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 13.
Funding	In order to achieve the range of outcomes indicated, funding in the order of US$63.2M will be required for Stage 1 and Stage 2. 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. It is important to note that financing arrangements are yet to be entered into however, in March 2018, the Company appointed Tribeca Investment Partners to arrange project debt facilities of up to US$65 million to assist in funding the development and restart of Honeymoon. This agreement is still in place. 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$85 million and it has successfully raised ~A$16 million over the last 36 months (in addition to selling its interest in Burkina Faso assets for A$10 million). The Board of Boss Resources 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: • Operational and support infrastructure already in place; • Current mandate in place with Tribeca Investment Partners to arrange project finance facilities of up to US$65 million; • The Board and executive team have a strong financing track record; • 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 35.9Mlbs within the Restart Area and excludes the remaining 35.7Mlbs sitting outside the Restart Area; • The Company has strong reputable brokerage support for the Project, providing reasonable anticipation that equity financing will be available to further progress the outlined staged development of the Project; • The economics of the FS are highly attractive and for this reason it is reasonable for the Company to anticipate that equity financing will be available to further develop

	the Project; • In addition to future equity financing, the Company plans to engage with potential debt providers and off-take partners, and will focus on progressing funding options in the short term. Preliminary discussions with potential off-takers has been positive; 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.