



More strong progress in preparation for re-start of Honeymoon uranium project

Front-end engineering work more than 50% complete and high-voltage power connection agreement executed; Plus, new wellfield design optimised, which is far superior to the previous wellfields

Boss Energy Limited (ASX: BOE; OTCQB: BQSSF) is pleased to report more strong progress on several fronts as part of its preparations for the re-start of production at its Honeymoon uranium project in South Australia.

Boss is undertaking multiple work streams in line with its strategy to ensure Honeymoon is as close as practicably possible to re-starting production once the Company determines that the uranium price makes it commercially desirable to do so.

Boss Managing Director Duncan Craib said: “Our latest outstanding progress demonstrates why Honeymoon is set to be Australia’s next uranium producer.

“Our strategy is aimed at ensuring Boss can move from a Final Investment Decision into execution and production as rapidly as possible.

“This will enable us to capitalise on a rising uranium price at the moment of our choosing.”

Engineering process on track and Project execution plan approved

The critical planning tool of Front-End Engineering Design (FEED) studies are more than half complete, and remains on target to finish in the March quarter, 2022. This will allow detailed design to commence immediately after a Final Investment Decision is made.

Boss has also approved the Project Execution Plan (PEP) for Honeymoon’s restart, which outlines the objectives, processes and strategies to be employed by the Company’s personnel (Owner’s Team) and appointed EPCM Engineer. This plan will also establish a framework to ensure that project expectations and key performance indicators are met.

Undertaken by the Owner’s Team, the PEP will be the governing control document for all aspects of Honeymoon’s execution phase of restarting operations and is designed to ensure the project meets targeted production requirements. The plan ensures that a consistent approach is adopted by all parties managing the project.

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Piping and Instrumentation Diagrams nearing finalisation

Completion and lock of designs of Piping and Instrumentation Diagrams (P&ID's) is now 92% complete (88 of 95 diagrams), an increase from the 69 diagrams completed and announced on 6 October 2021.

A key milestone was reached with the completion of P&ID layouts for the NIMCIX columns.

The remaining P&ID layouts are expected to be completed in coming weeks, including Wellfield Instructure, Water Treatment Plant and general water services.

Connection Service Agreement Executed

Taking another key step in its strategy to re-start production at Honeymoon, Boss has executed a high voltage connection service agreement with Essential Energy, a statutory state-owned corporation established under the Energy Services Corporations Act 1995 (New South Wales).

Securing power supply is a primary requirement for any mine development. Power supply for the Honeymoon Mine is via overhead transmission line from the national electricity grid via Australia's oldest mining town Broken Hill, located 65km to the south-east, and nearby Cockburn. Honeymoon's fortunate geographical location ensures security of power will be provided by the national grid.

Upgrading Honeymoon's nameplate production to 2.45 Mlbs U_3O_8 required the negotiation of a new high voltage connection agreement, where additional transformers and other voltage control equipment are required at the connection and destination points.

Wellfield Design Optimisation

Honeymoon's wellfields have been planned over the mineable resource. Wellfield pattern radii are varied to suit the orebody morphology and achieve an economic wellfield development cost-per-pound of uranium. The wellfields have been planned as 5-spot patterns with a single extraction well surrounded by 4 injection wells. The 5-spot pattern is a conventional ISR wellfield layout implemented at most operating ISR mines. This layout has the advantage of minimising wellfield development cost and providing a flexible layout for optimising leach performance.

A detailed review of the high-grade Historic Wellfields has revealed that of the existing near-mine Wellfields A B and C, only 28% (0.7 Mlbs) of the total uranium resource was produced.¹ The findings show that the previous wells were constructed with standard water supply well technology which failed to accurately target the mineralised horizons. The primary reason for the incomplete leaching of the basal sand resource is that wellfields had been constructed using methods applicable to agricultural water supply wells. Such designs comprised PVC Pipe installed to the top of the approximate mineralisation. The well was then drilled to depth and a stainless-steel mesh screen was telescoped into the approximate position of the mineralisation (Figure 2).

Honeymoon's wellfields are now designed with a very precise production zone that directs the injected leach solution into contact with the target ore horizons. The opening between the well and the ore horizon is precisely cut (under-reamed) out of a sealed PVC bore casing. This well design is standard ISR technology

¹ Estimates extracted from the Resource Block Model reported in Boss Energy ASX Release 25 February 2019.

used globally, representing a significant enhancement over the previous the previous wellfields (Figure 3).

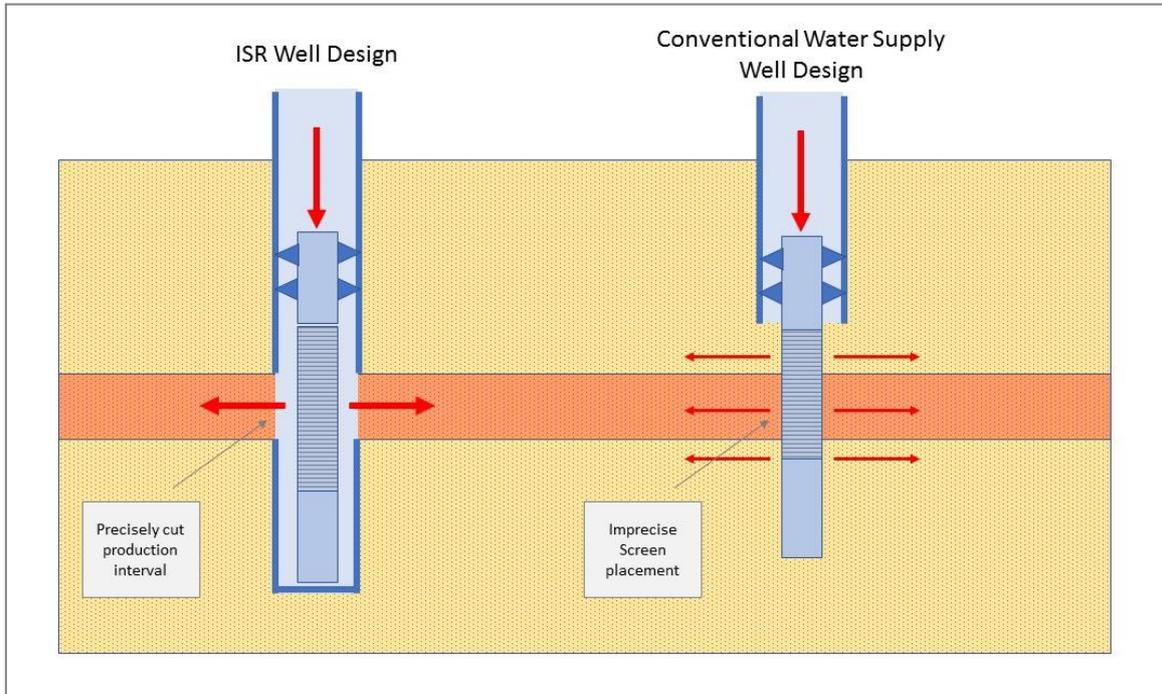


Figure 2: Specialist ISR Well Design planned for Honeymoon compared to the Agricultural water supply well construction used in historic wellfields A, B and C. Mineralisation is now mapped, resulting in precise screen intervals and improved fluid controls.

Screens will now be optimally placed across all uranium mineralisation with precise intervals, allowing uranium mineralisation to be mapped in detail before screened intervals are selected. A more consistent wellfield design will completely address the uranium mineralisation over the historic wellfield patterns A, B and C.

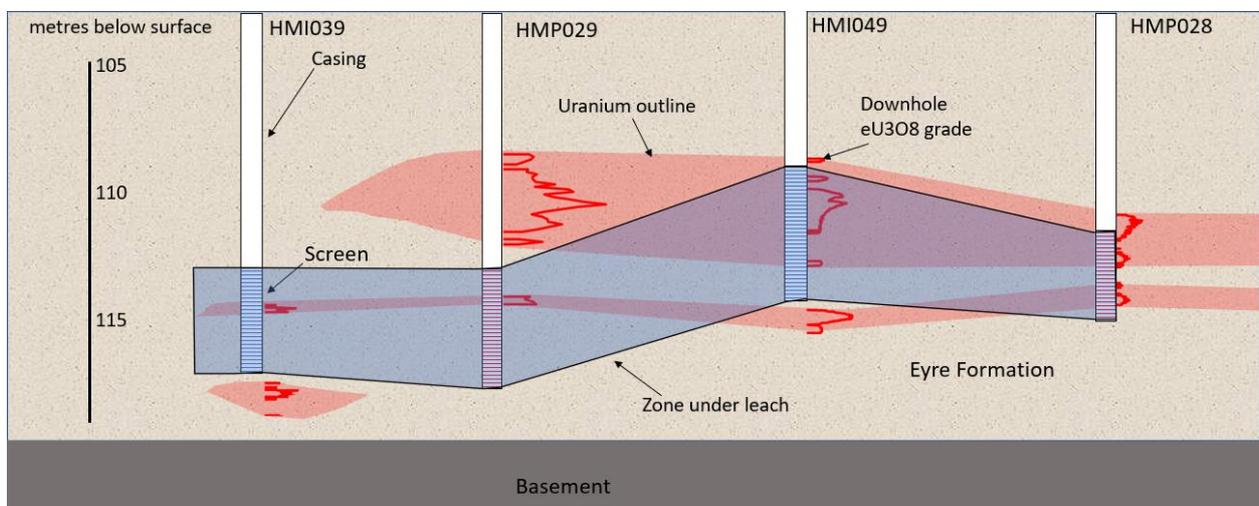


Figure 3a: Historic Wellfield Design: Well screens and leached zone failed to address all uranium mineralisation.

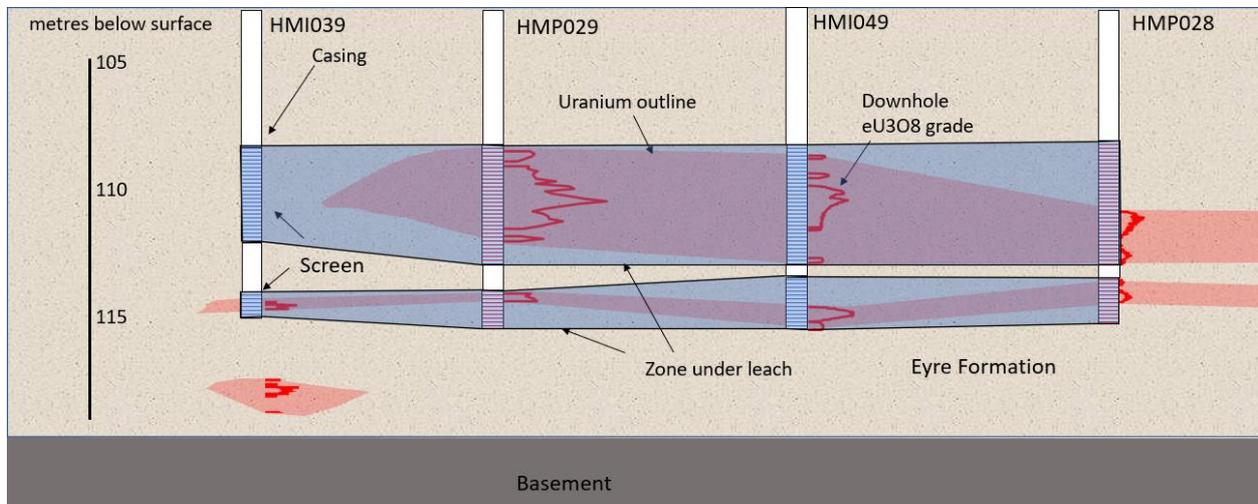


Figure 3b: Optimised Wellfield Design: Well Screens and leached zones completely address uranium mineralisation.

The planned start-up wellfield configuration comprises three wellfields and a rapid ramp up to a production rate of 1.2 Mlbs by the end of Year 1.

The Start-up phase will operate using the existing wellfields A, B and C feeding lixiviant to three NIMCIX trains in the Ion Exchange facility for a production rate of 1.2 Mlb/annum. Following Ramp-up, with a parallel IX facility and new wellfields located within the Honeymoon Restart Area, the production capacity will be increased to a nameplate capacity of 2.45 Mlb/annum.

Table 1: Production Ramp-up

| Phase | NIMCIX Columns | Max Lixiviant Flow Rate (m ³ /hour) | Nominal Grade (g/m ³ U ₃ O ₈) | Production Rate (Mlbs/year U ₃ O ₈) |
|------------|----------------|---|--|---|
| Start-up | 3 | 1,500 | 50 | 1.2 |
| Name-plate | 6 | 3,000 | 50 | 2.45 |

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

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APPENDIX 1

Honeymoon Project Mineral Resource (lower cut-off of 250 ppm U₃O₈)

The global Honeymoon Mineral Resource stands at **71.6 Mlb (52.4Mt) with an average grade of 620ppm U₃O₈, using a cut-off grade of 250ppm**, as summarised in **Table 1**.²

In addition to the global Mineral Resource, the Honeymoon Uranium Project also has an Exploration Target range of **28 Mt to 133 Mt of mineralisation at a grade of 340 ppm to 1,080 ppm U₃O₈ for a contained 58 Mlb to 190 Mlb U₃O₈ (26,300 to 86,160 tonnes of contained U₃O₈), using a cut-off of 250ppm**. Note the potential quantity and grade of the Exploration Target range 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.

Table 1: Summary of upgraded Mineral Resource for the global Honeymoon Uranium Project

| Resource Classification | Tonnage (Million Tonnes) | Average Grade (ppm U ₃ O ₈) | Contained Metal (Kt, U ₃ O ₈) | Contained Metal (Mlb, U ₃ O ₈) |
|--|--------------------------|--|--|---|
| Jason's (March 2017)³ | | | | |
| Inferred | 6.2 | 790 | 4.9 | 10.7 |
| Gould's Dam (April 2016)⁴ | | | | |
| Indicated | 4.4 | 650 | 2.9 | 6.3 |
| Inferred | 17.7 | 480 | 8.5 | 18.7 |
| Honeymoon 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 |

Reference to previous ASX announcements

In relation to the results of the Enhanced Feasibility Study announced on 21 June 2021, the Company confirms that all material assumptions underpinning the production target and forecast financial information included in that announcement continue to apply and have not materially changed.

The mineral resource estimates in this announcement were reported by the Company in accordance with listing rule 5.8 on 25 February 2019. The Company confirms it is not aware of any new information or data that materially affects the information included in the previous announcement and that all material assumptions and technical parameters underpinning the estimates in the previous announcement continue to apply and have not materially changed.

² Refer to ASX: BOE announcement dated 25 February 2019.

³ Refer to ASX: BOE announcement dated 15 March 2017.

⁴ Refer to ASX: BOE Announcement dated 8 April 2016.

The exploration target referred to in this announcement was reported by the Company in accordance with listing rule 5.7 on 25 March 2019. The Company confirms it is not aware of any new information or data that materially affects the information included in the original market announcement and that all material assumptions and technical parameters underpinning the estimates in the previous announcements continue to apply and have not materially changed. The exploration target does not include areas of the existing Mineral Resource and the potential quantity and grade reported are conceptual only in nature. Insufficient exploration has been conducted to estimate a Mineral Resource and it is uncertain whether future exploration will lead to the estimation of a Mineral Resource in the defined areas.

Forward-Looking Statements

This announcement includes forward-looking statements. These forward-looking statements are based on the Company's expectations and beliefs concerning future events. Forward-looking statements are necessarily subject to risks, uncertainties, and other factors, many of which are outside the control of Boss Energy, which could cause actual results to differ materially from such statements. Boss Energy makes no undertaking to subsequently update or revise the forward-looking statements made in this announcement, to reflect the circumstances or events after the date of this announcement.