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September 2023 Quarterly Report

Boss set to become only ASX-listed pure play Australian uranium producer

Imminent start-up at Honeymoon Project in South Australia positions Boss to capitalise on demand for uranium from Tier-1 locations

Quarterly Highlights

- Honeymoon continues to run on time and on budget with project execution proceeding to plan
- Mining operations started, paving way for first production in the December quarter, 2023
- Wellfield pre-conditioning underway as final step before start of uranium extraction
- Gypsum repository completed; Water Treatment Plant and RO Plant being commissioned
- Experienced wellfield personnel recruited and all positions filled
- Boss won a competitive application to explore potential new uranium province just 130km from Honeymoon
- Strong infill drilling results at Gould's Dam satellite deposit support plan to grow mine life and production rates,
- In light of the strong results, Boss is now preparing for technical and economic studies on developing Gould's Dam as an additional production source
- Highly successful scout drilling at the Billeroo and Sunrise satellite prospects reveals significant potential for more resources close to Honeymoon
- These two new target areas, along with the known satellite deposits of Gould's Dam and Jasons, will form the basis of a study on increasing the forecast production rate to more than 3Mlb/annum U_3O_8 equivalent (from 2.45Mlb nameplate capacity) or an extension of mine life
- The current life-of-mine plan at Honeymoon is based on just 50% of the existing JORC Resource
- Major milestone achieved with the arrival onsite of the first set of NIMCIX loading and elution columns for the new Ion Exchange (IX) circuit
- The adoption of IX technology, which is central to the processing plant, will enable highly efficient capture, concentration, and purification of the uranium from the wellfields
- This will result in increased throughput, more production and lower costs than was possible using the solvent extraction system previously employed at Honeymoon

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Boss Energy Limited (ASX: BOE; OTCQX: BQSSF) is pleased to report that another successful quarter at its Honeymoon project has left it poised to become the only ASX-listed pure play Australian uranium producer.

The Company is on track to start uranium production in the December quarter, 2023.

Boss Managing Director Duncan Craib said: “We have continued to implement our development strategy in line with the budget and timetable.

“This highly successful execution has ensured we are set to start production this quarter as planned, making Boss Australia’s third uranium producer and the only pure play Australian uranium producer on the ASX.

“With the uranium price recently hitting a decade high of US\$73 a pound, we are now perfectly positioned to capitalise on this huge opportunity.

“Our position is further strengthened by the fact that we have no debt, cash on hand of \$63 million¹ and a strategic uranium stockpile now worth \$144² million based on current spot prices”.

Key Achievements in September Quarter

Committed expenditure under the Honeymoon re-development program totals A\$95M (or 90%) of the budgeted ~A\$106M CAPEX, excluding a A\$7M contingency, with incurred costs amounting to A\$66M.

All critical path items remain on track for delivery in line with the project schedule. More than 276 procurement packages have been issued. The packages awarded to date are in line with the front-end engineering design (FEED) released to the ASX on 31 March 2022.

Infill drilling on satellite deposits to grow mine life and production rate

In July 2023, Boss announced the start of an infill drilling program targeting the Gould’s Dam and Jason’s satellite deposits at Honeymoon.

The program was aimed at upgrading the resources at both deposits while improving the geological and hydrogeological understanding of the uranium mineralisation.

Mr Craib said: “These satellite deposits have the potential to expand Honeymoon’s production profile and extend the current mine life.

“Increases in the forecast production rate were not considered as part of the current Honeymoon restart feasibility studies. But given the strong outlook for the uranium market, we want to unlock the substantial value which would result from increasing the inventory and production rate”.

Boss completed detailed geological modelling and planning for resource upgrade drilling on Gould’s Dam and Jasons deposits. These studies highlighted the opportunity to grow and upgrade the satellite JORC resources.

It is envisaged that these new target areas will form the basis of a study to assess and define an increase in the forecast production rate to more than 3Mlb/annum U₃O₈ equivalent or an extension of mine life.

¹ As at 30 September 2023 (excluding 100% cash backed environmental bond of approximately A\$9M)

² Strategic uranium stockpile valued at A\$144M based on a spot U₃O₈ price of US\$73/lb and an exchange rate of A\$1:US\$0.632

High-grade drilling results point to growth in mine life and production rates

In August 2023, Boss announced high-grade results from Resource extension and infill drilling at the Gould's Dam satellite deposit at Honeymoon.

Mr Craib said: "These strong drilling results are in line with our strategy to increase the inventory at Honeymoon. This will in turn enable us to grow the mine life and production rate, increasing cashflow and leveraging our existing infrastructure.

"The results from new drill holes within the resource surpass our expectations in both grade and thickness of the mineralisation. This is demonstrated by the exceptional results from WRM0013 including 5.25m width @ 3,744ppm pU₃O₈ (19,658 GT).

"To put it into perspective, our cut-off grade is 250ppm and while we could mine at lower grades, there are numerous cost and operational benefits to leaching higher grade material from continuous thicknesses. Primarily, less ore has to be leached to extract the same amount of contained uranium, which typically results in lower operating costs and increased operating margins.

"The data also enables us to improve our exploration models for the region and strongly suggests that future exploration programs have the potential to add to the existing Mineral Resource".

Strong infill drilling results at Gould's Dam satellite deposit support plan to grow mine life and production rates

In September 2023, Boss announced more strong drilling results from within the Indicated Resource at the Gould's Dam deposit at Honeymoon.

The results are important because they support Boss' strategy to grow the production rates and mine life at Honeymoon.

Mr Craib said: "These latest infill drilling results demonstrate the quality of the Gould's Dam deposit and the strong potential for it to play an important role in the growth strategy at Honeymoon.

"In light of all the drilling results we have received, we have decided to start baseline technical and economic studies on Gould's Dam with the aim of moving it towards development. We will also undertake scout drilling to potentially grow the overall Gould's Dam Resource.

"This approach is consistent with our overall aim of growing Honeymoon's production, which will in turn enable us to capitalise fully on the infrastructure we are establishing at the project, in turn driving strong financial returns".

Boss achieves significant milestone with commencement of mining operations on Honeymoon

Subsequent to the end of the quarter, Boss announced the commencement of mining activities on Honeymoon, with the first wellfield being pre-conditioned in the lead up to in-situ recovery (ISR) feeding the processing plant with extracted uranium during Q4 2023.

Pre-conditioning effectively cleans the wellfields of unwanted chlorides and calcium prior to uranium recovery being extracted. To achieve this milestone Boss has successfully completed major construction activities including wellfield development, gypsum repository construction, water treatment and RO plant commissioning. Completion of these milestones ensures Honeymoon remains on track for production in the December quarter, 2023.

Drilling for base metals underway at Honeymoon

Subsequent to the end of the quarter, Boss announced that First Quantum Minerals (TSE:FM) (FQM) had commenced a maiden diamond drilling program targeting basement-hosted base metal mineralisation below the Yarramba Palaeovalley on Honeymoon's tenements in South Australia.

The drilling program will cover three high-priority targets identified from extensive analysis and modelling of geophysical and geochemical datasets, alongside geological logging of historic drill holes at the state core library in Adelaide. The drilling will comprise at least five diamond core holes for a minimum of 1,800m drilling, with experienced drilling contractor DDH1 chosen to complete the program. The program is expected to take 4-6 weeks, with geochemical assay results expected within 1-2 months of program completion.

Boss Energy entered into an exploration earn-in agreement with FQM in February 2022. FQM is a significant Canadian-listed group operating eight mines across four continents producing copper, nickel, and gold with an additional three mines under development. With a proven track record in discovering and developing deposits, Boss considers FQM an ideal partner in the exploration and potential development of any base metal discoveries at Honeymoon.

Boss Managing Director Duncan Craib said: "This agreement is an outstanding opportunity for Boss and our shareholders.

"We have a global leader in FQM funding base metals exploration at Honeymoon, giving Boss significant exposure to their success at no cost to us while we focus on our goal of becoming Australia's next uranium producer".



Image 1: Commencement of ISR mining operations underway on Honeymoon



Image 2: RO and Water Treatment Plant being commissioned

Uranium Market Analysis

Ux U3O8 Price - 2 Year History (Weekly)

Ux U3O8 Price® - 2 Year History (Spot)



The spot price has risen from \$56.20/lb at the end of June to \$70/lb at the end of September. The quarter had a slow start despite the coup in Niger and the news about delays to the start-up of new production.

The underlying fundamentals continue to improve with less uranium available in the spot market and demand rising from the traditional as well as financial buyers. Much of the buying, in the spot market, during this quarter has been from financial entities and traders while new entrants from the financial sector continue to evaluate opportunities.

The YTD term market has been active and, based on volumes traded to date of 145M U₃O₈ lbs, volumes have already exceeded those in 2022 of 120M lbs U₃O₈. The term price indicator at the end of September was \$61/lb, \$10/lb higher than at the end of 2022, and the first time the term price indicator has been above \$60/lb since the end of 2012.

The ongoing invasion of Ukraine by Russia, the Niger coup and the recent events in Israel have heightened awareness of geopolitical tensions and the importance of security of supply. Contracts for supply to utilities in this decade are being sourced from existing production, expansions, and new supply. Any delays to startups or expansions will put more pressure on the spot and long-term prices.

The Honeymoon mine will be starting production in Q4 2023 and is currently on time and on budget and debt free. As a new mine in a politically stable country and in a uranium friendly state it is well positioned to offer stability in an uncertain market.

Strong Balance Sheet

As at September 30, 2023, the Company held unrestricted cash and cash equivalents of A\$63M, which excludes a fully cash-backed environmental bond of A\$8.9M. Cash balances are being managed with a term deposit program to take advantage of the higher interest rate environment.

The Company also holds inventory of 1.25Mlb of U₃O₈, which has a current spot market value of A\$144M. Combined with unrestricted cash, Boss has liquid assets of A\$207M, no long-term debt obligations, leaving it well-positioned to transform Honeymoon into production.

Appendix 5B disclosures

In line with its obligations under ASX Listing Rule 5.3.5, Boss notes that the only payments to related parties of the Company, as disclosed in the Appendix 5B (Quarterly Cashflow Report) for the period ended 30 September 2023, consist of executive director, company secretary and chief financial officer salaries and wages (including superannuation) and payment of non-executive director fees.

During the quarter ended 30 September 2023, the Company spent approximately \$25.0M on project and exploration activities relating to its Honeymoon Project. These activities included:

- Technical studies costs
- Construction equipment;
- Wellfield drilling and development costs;
- Engineering and construction expenses.

In addition to these activities the Company continued to incur costs relating to the ongoing maintenance activities required at Honeymoon. The expenditure represents direct costs associated with these activities as well as capitalised wages which can be directly attributable to Honeymoon.

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

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Appendix One:

Schedule of Mining Tenements

The following information is provided pursuant to Listing Rule 5.3.3 for the quarter ended 30 September 2023.

Tenement Name	Location	Licence Number	Interest
Yarramba	South Australia	EL6510	100%
South Eagle	South Australia	EL6081	100%
Gould's Dam	South Australia	EL6512	100%
Katchiwilleroo	South Australia	EL6511	100%
Ethiudna	South Australia	EL6020	100%
Gould's Dam	South Australia	RL83-85	100%
Honeymoon Mine	South Australia	ML6109	100%
Prairie Dam	South Australia	ELA2023/00049	75%
Chalker Dam	South Australia	ELA2023/00051	75%
Oakvale	South Australia	ELA2023/00052	75%
Gairloch	South Australia	ELA2023/00053	75%

The Company was awarded four new Exploration Licence Applications (ELAs) in northwestern South Australia approximately 130km south of the Honeymoon Mine during the quarter. There were no mining tenement divestments during the quarter.

EL6512, 6511, 6020, 6510 and 6081 are subject to an earn-in agreement with First Quantum Minerals in respect to the base and precious metal rights. Refer ASX release dated 10 February 2022 for further information.

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

Classification	Tonnage (Million Tonnes)	Average Grade (ppm U ₃ O ₈)	Contained Metal (Mkg, U ₃ O ₈)	Contained Metal (Mlb, U ₃ O ₈)
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.

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, which could cause actual results to differ materially from such statements. Boss 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.