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Honeymoon Uranium Project, South Australia

Boss achieves significant milestone with commencement of mining operations on Honeymoon

Honeymoon on track for first production this December quarter

Highlights

- Commencement of wellfield pre-conditioning as final step before uranium extraction
- Water Treatment Plant and RO Plant being commissioned as part of this process
- Gypsum repository completed
- Full complement of experienced wellfield personnel recruited
- Honeymoon remains on time and on budget for production this quarter

Boss Energy Limited (ASX: BOE; OTCQX: BQSSF) is pleased to announce 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.

Boss Managing Director Duncan Craib said: "It is a testament to the hard work and effort undertaken by all Boss employees over many years to reach today's pivotal milestone, the commencement of mining activities on Honeymoon".

Mining operations were previously suspended in November 2013 in response to falling uranium prices. Since acquiring the Honeymoon Project in December 2015, Boss embarked on a series of technical optimisation studies to improve Honeymoon's position as a globally competitive mining operation in a tier 1 location.

The project development is proceeding to plan and remains on time and on budget as Boss moves towards the restart of Honeymoon in a few months' time.

Our timing is looking ideal, with the uranium market continuing to tighten and the spot price moving up, now trading at decade highs of US\$69/lb U₃O₈¹.

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Wellfield Pre-conditioning

Wellfield pre-conditioning is undertaken to remove calcium and chloride from the orebody to facilitate efficient leaching and uranium capture.

Groundwater containing calcium and chloride is pumped from the orebody via extraction wells and processed through the water treatment plant to remove calcium, and then through a reverse osmosis plant to remove chloride. The clean water is then acidified prior to reinjection into the orebody via injection wells.

The removal of calcium ensures that leaching is not impacted by gypsum scale. The removal of chloride maximises the efficiency of uranium capture by ion exchange resin. The addition of acid ensures that calcium removal is complete, and pre-conditions the orebody for efficient leaching.

The pre-conditioning work for the start-up wellfield comprises careful commissioning of each part of the treatment circuit and will take about 2 months to complete.

To commission and operate the wellfield pre-conditioning process, the operational workforce has been recruited with experienced personnel.

Supporting infrastructure is in place including the raw water system, the 25,000 ton gypsum repository, reagent handling systems and first fills of key reagents.



Image 1: Picture of the start-up wellfield prior to pre-conditioning and commissioning



Image 2: 250m³ /hour RO Plant and Water Treatment Plant

Uranium Production

Following pre-conditioning, uranium extraction will commence via ISR. This involves fortifying the pre-conditioned groundwater with reagents prior to injecting the 'lixiviant' into and through the orebody to dissolve uranium. The uranium rich solution is then pumped to the surface via extraction wells and discharged to the Pregnant Leach Solution (PLS) process ponds. Uranium is captured from the lixiviant via Ion Exchange (IX), precipitated and calcined to produce a high quality saleable uranium oxide (U₃O₈) product.

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

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¹ Source: TradeTech, LLC (www.uranium.info) as at 10 October 2023