BOSS RESOURCES LIMITED

ASX Announcement                                                                 4 October 2017
ASX: BOE

# HONEYMOON FIELD LEACH TRIAL – FIRST SUCCESS

## HIGHLIGHTS

- Ion Exchange pilot plant commissioning completed and steady state operation has been achieved with the first "campaign" underway
- Ion Exchange results confirm the high loading capacity of the selected resin under Honeymoon conditions
- Results demonstrate successful Ion Exchange performance on real leach liquor
- Second wellfield pattern has started up and conditioning is underway with stable flow patterns being achieved
- Site visit conducted by Dr. Dennis Stover, leading international Uranium ISR expert, with positive initial feedback on progress

**Boss Resources Limited (ASX: BOE)** ("**Boss**" or the "**Company**") is pleased to announce that the operation of the Field Leach Trial ("FLT") and Ion Exchange ("IX") pilot plant at its Honeymoon Uranium Project ("Project") in South Australia continues to deliver impressive results. The IX pilot plant has reached a stable steady-state of operation with the first campaign underway. The IX pilot plant has performed exceptionally well, satisfying key technical validation steps during these early commissioning stages on real leach liquor, even when low-grade feed solutions were being treated. The program remains on schedule for completion in November 2017.

Boss Managing Director, Mr Duncan Craib stated that *"This is a tremendous outcome; we have successful demonstrated that the historic doubts about the reliability and economic viability recovering uranium from the Honeymoon type solutions are no longer valid. Performance to date of the new resin being tested in the IX pilot plant has exceeded expectations and proven Boss has answered this question and that the Company is on track to developing an effective process appropriate for Honeymoon type liquors with high chloride.*

*"Wonderful to also receive positive feedback from leading international ISR independent expert, Dr. Dennis Stover, during his Honeymoon site visit last week."*

## Ion Exchange Piloting

The IX process has performed exceptionally well during this initial start-up proving the very high selectivity of this resin, even at low feed tenors, over iron and other impurities. The high loading capacities achieved confirm the results seen in the laboratory scale test work. The elution conditions have shown that very low uranium grades in the eluted resin are possible meaning low grade barren solutions and concurrent high recoveries are possible.

This integral technical validation step for the Honeymoon Uranium Project confirms the results derived from the ANSTO testwork program and the selected resin, as included in the Pre-Feasibility Study and highlighted by the substantial improvements in the Ion Exchange process (see ASX : 27 April 2017). The combination of high loading and high recoveries validate the low upfront CAPEX for the Honeymoon expansion to a minimum 2Mlb/annum process plant.

The commissioning stage of the IX pilot plant, including training of all operators has been completed and the first of two campaigns has started. This initial campaign will be undertaken with a fixed feed grade of 50mg/l $U_3O_8$ and will form the base case for the feasibility study process design work. As part of this campaign the elution process will also be further optimised to target a higher-grade eluate that will have cost benefits on the downstream processes. A second campaign will be undertaken later in the program with an increased feed tenor to show the higher loading capacities of this resin and further demonstrate the benefits of operating at higher feed tenors.

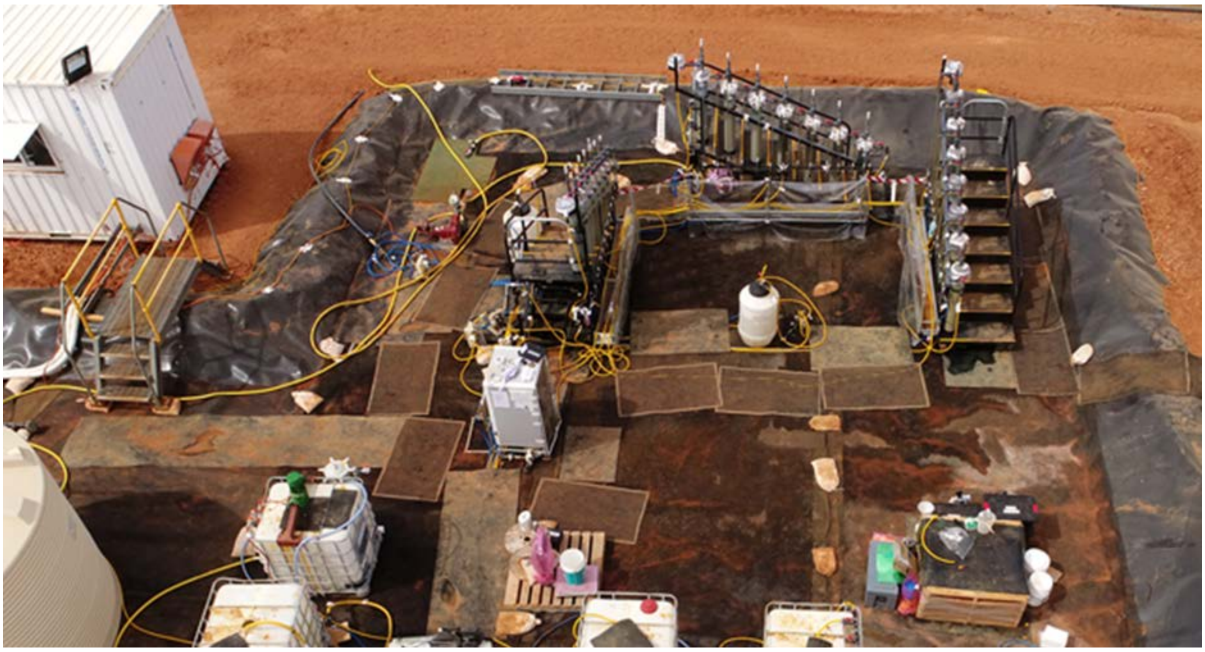

*Figure 1: Aerial view of IX Plant*


*Figure 2: IX Pilot Plant Loading Columns*

## Leaching Progress

Boss is assessing the leaching process on two well field patterns, consisting of low and high-grade test cases (referred to as "E3" & "E1" respectively). The high-grade leach pattern (E1) commenced operation on 12 September 2017 and was run with a clean acid solution prior to the introduction of the oxidant (ferric) to the system. As expected the 'response' time of this pattern to changes is significantly faster than the E3 pattern due higher flowrates being achievable. These higher flowrates are due to the broader mineralised zone associated with E1 (and higher permeability) that has allowed long screens to be installed and consequently higher flowrates to be attained. This is beneficial from a leach kinetics perspective and should result in faster leaching occurring in the high-grade pattern.

Both patterns continue to be run in parallel during this early stage with uranium tenors starting to build-up as the conditioning phase runs to completion and the required leaching parameters are achieved. The leaching conditions for each pattern will continue to be optimised to demonstrate further increases in tenor prior to configuring the wells in a series arrangement to test the solution stacking concept that is important for the low-grade patterns. The optimisation strategy proposed considers acid strength, iron tenors, solution flowrates, oxidant type and addition rate.

To date the data indicates that acid consumptions are lower than expected. This provides an opportunity for testing higher acid addition rates on leach performance, most notably leach kinetics. Any positive impacts from operating at these higher acid strengths can then be compared to the additional costs incurred. No evidence of gypsum precipitation or fouling has been seen, even though consistent calcium leaching has occurred. This has significant potential benefits for the commercial plant as the volume of the bleed stream to control gypsum is directly related this solubility and lower bleed volumes will reduce operating costs.

Oxidant consumption (ferric chloride use) has been higher than suggested by the benchscale testwork and this correlates with the elevated pyrite content observed in the drill samples taken from the area during the well construction phase. Although pyrite is known to occur within the Honeymoon deposit, the higher values seen in the FLT area do not compare with results experienced by Uranium One during the operation of the previous wellfields (A, B, C & D). This high pyrite content therefore appears to be a localised event and will be managed through increased oxidant addition so as to "consume" the reactive pyrite. This is currently being investigated as part of the FLT optimisation work. The increased oxidant addition rate may be compensated for by alternate oxidant and/or lower acid demand.

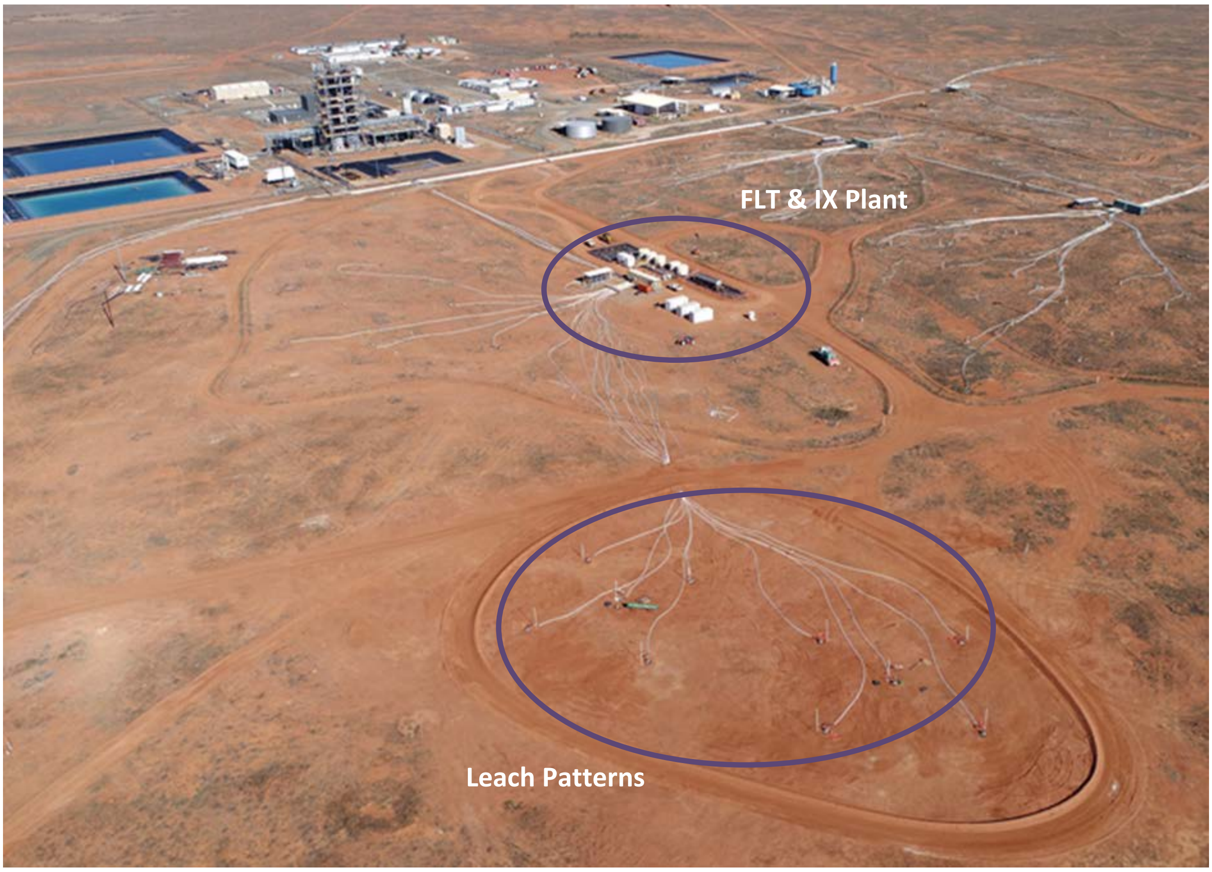


*Figure 3: Aerial view of Honeymoon Plant and location of FLT*

**For further information, contact:**
Duncan Craib    Managing Director    +61 (08) 6143 6730