

SUCCESSFUL ADVANCEMENT OF RE-START STRATEGY – OPTIMISATION PROGRAM & TRADE-OFF STUDIES

Boss Resources Limited (ASX: BOE) (“Boss” or the “Company”) is pleased to report its progress on the Re-Start Strategy at the Honeymoon Uranium Project, South Australia. As previously detailed, (ASX Announcement - 2 July 2018), the Re-Start Strategy comprises three key phases. The first phase is focused around the generation of the final input data, including the recently completed infill drilling program to deliver the measured and indicated resource, required for the completion of the Definitive Feasibility Study (“DFS”).

Phase 1 also includes the optimisation program and trade-off studies which are being carried out to identify potential cost savings and/or process improvements, in addition to a preliminary execution plan, updated cost estimate and schedule for the restart of the existing solvent extraction (“SX”) plant.

The testwork programs are all well advanced with improvements being demonstrated over the original base case process defined in the Pre-feasibility Study. Results to date confirm that Boss is well on track to successfully returning the Honeymoon Uranium Project to production.

Boss Resources Managing Director, Duncan Craib, said, “As we progress with the Re-Start Strategy, the technical and commercial aspects of returning Honeymoon to production are being methodically advanced. The recently reported positive infill drilling results, combined with further developments in the optimisation program and trade-off studies to identify cost savings and process improvements all indicate that we are on track for progressing positively towards DFS.

“We have a fantastic team of experts working for us across all key areas at this crucial stage, including several team members that were involved with the plant when it was previously operating. I have no doubt their expertise will prove invaluable to the Company as we advance towards Phase 2 early in 2019, which will begin with the updated mineral resource estimate, followed by the wellfield design activities.”

Optimisation Program

Ion Exchange

The ANSTO testwork program is focused on investigating options for improving the elution process for the selected resin. The ion exchange (“IX”) piloting undertaken as part of the Field Leach Trial (“FLT”) program indicated lower than predicted eluate tenors, which would result in higher eluate flowrates (for the same production) and therefore marginally larger downstream equipment. The testwork

results have shown these eluate grades can be improved by physical changes e.g. increased elution temperature and lower elution flowrates as well as by modifying the eluant liquors with increased acid content. One area of specific interest relates to modifying the loaded resin prior to stripping. This option has shown significant increase in eluate tenors and is currently an ongoing focus for the program.

Nano-filtration

Nano-filtration will be used on the IX eluate stream to recover the IX eluant reagent (sodium chloride), while at the same time increasing the uranium tenor in the feed liquor to precipitation circuit. The first stage of the program has been completed, with a number of membranes tested to determine the preferred membrane type and associated operating conditions. A small pilot rig is now being set-up to run a continuous system to generate more representative data that can be used for the design of the system. The results of this work will be provided to the engineering consultants so they can size and cost the nano-filtration equipment required for commercial operation.

Uranium Precipitation

Uranium precipitation testwork assuming the existing circuit configuration onsite at Honeymoon has progressed well. The initial phase of testwork has focused on defining the optimal “recipe” for the precipitation process i.e. hydrogen peroxide addition rates, pH and residence times. The results have defined an operating window for the process that maximises precipitate particle size (which is important for downstream dewatering) and optimum reagent use. Improvements over the original production data have been witnessed, although this will need to be scaled up to determine the final benefits.

The program has focused on the conditions to be used when treating the solution produced from the SX circuit i.e. conditions for the first 18 months of the operation based on the current production schedule. The program will now move onto testing the conditions relevant to treating a combined IX and SX solution, which is relevant to the planned operation after the 18-month ramp-up. Confirmation of this will allow the DFS to move ahead with only a single uranium precipitation circuit, as opposed to the two-train system proposed in the PFS which treated IX and SX solutions separately. This will allow a reduction in upfront capital costs.

Leaching

Leaching testwork carried out previously on core samples recovered from the sonic drilling program identified an issue with pre-oxidation of the material during sample transport and / or sample preparation prior to the leaching, that resulted in a portion of uranium being recovered during the initial re-pulping step. The causes of this issue have been investigated and through consultation with other operations, a revised handling procedure for the material prior to leaching has been developed. This new procedure is being tested on the existing Honeymoon core held at ANSTO and once verified,

will be used for the new core to be delivered from the sonic drilling program scheduled for later this month as part of the resource drilling program.

The leaching program is set up to confirm the leachability of the core samples from Honeymoon and the entire proposed wellfield area i.e. Brooks Dam and East Kalkaroo.

In addition, the program will develop a simple leaching test that can be carried out onsite during the operating phase to assist in defining the operating conditions for each wellfield as it is brought online.

Alternate Leach Oxidant

Inception Group has a patented process for in-situ oxidant generation which would be ideal for Honeymoon where higher levels of sulphide are seen. Inception has now initiated a small-scale laboratory testwork program to develop a “proof-of-concept” assessment that the technology could be applicable to the Honeymoon scenario. Boss will participate in developing this technology if the proof-of-concept proves successful. A joint program of work is planned to be undertaken to pursue this further.

Trade-off Studies

Ion Exchange Columns

The most significant capital cost items in the expanded plant proposed in the PFS are the Ion Exchange columns. NIMCIX columns were selected as the preferred equipment type due to their reduced resin inventory and higher eluate grades.

A study is currently being carried out with an engineering consultant and external process consultant to determine if alternate ion exchange columns used by other operators in the uranium mining industry (e.g. fixed bed or “U”-tube units) may provide some benefit to the project with regards to either reduced capital costs, reduced operating costs or improved operability. The results from the IX pilot plant will be used for this study as well as the results from the current IX elution testwork program.

The results from this study will define the preferred case for the DFS and provide further confidence in the selection process going forward.

Yellow Cake Dryer Capacity

The planning stages for the drying capacity assessment at Honeymoon have been completed, with the team mobilising to site at the end of October to review the current condition of the two installed dryers. The team selected includes a number of persons involved with the plant when it was operating under the previous owner. Their input with regard to the critical issues that occurred during this period will be crucial to developing a robust process that will not constrain production. At the completion of the assessment, confirmation of the modifications and upgrades that are possible and whether these

will allow the expanded production rate to be achieved will be determined. A cost estimate for the upgrade and a delivery schedule will also be devised.

SX Re-Start Assessment

An important component for the Project is the re-start of the existing SX processing plant at Honeymoon. The SX plant will be started up during the construction of the new IX plant and for the first 18 months of operation, the majority of the production will be derived from this plant. These facilities have been on care and maintenance since the plant shutdown in 2015, with only critical maintenance activities undertaken.

Planning for the assessment of the current state of the plant is underway and a number of experts have been identified that will assist with this review. The scope of works and expected deliverables are currently being confirmed. A site visit to start the assessment is planned for mid-November and the team is preparing for this visit by reviewing the proposed upgrades identified in the PFS and collating historical operating data that will assist in the assessment.

The results of this work will be available in early January so that it can be incorporated into the DFS work program.

Operational Readiness

Work will be done to develop the first pass of an operational readiness plan which will cover what the Company needs to do at both a corporate level and an operational level, to be ready to execute the Project and re-commence operations.

PHASE 1 SCHEDULE

The estimated dates for the completion of the main deliverables for Phase 1 are as follows:

- Infill drilling program has already been completed
- Optimisation testwork (except leaching) programs to be completed by end November
- Trade-off Studies to be completed by mid-December
- Preliminary SX Re-Start Assessment delivered by early January
- Preliminary Operational Readiness plan delivered by end January

FUTURE WORK PROGRAMS

On completion of the Phase 1 activities, Phase 2 of the Re-Start Strategy will commence. This will begin with the updated mineral resource estimate, followed by the wellfield design activities which will be based on the geological and resource models.

The recent infill drill results, along with the historical drill results, will be used for the mineral resource update which is targeting a measured and indicated resource for the Honeymoon, East Kalkaroo and Brooks Dam deposits.

The DFS engineering works; process, engineering design and cost estimation, will use the results from the Phase 1 studies along with the outputs of the wellfield design (wellfield solution tenors and flowrates) to deliver an independent feasibility study report. As part of this work program the solvent extraction re-start assessment and operational readiness programs will be updated to reflect any changes and a detailed execution plan developed. In addition, the necessary permitting updates and applications will be prepared so as to minimise any delays with progressing into the next phase.

Phase 3 of the strategy covers the detailed execution planning, operational readiness inclusive of the SX plant recommissioning plan, in conjunction with the ion exchange plant detailed design.

For further information, contact:

Duncan Craib	Managing Director	+61 (08) 6143 6730
Nathan Ryan	NWR Communications	+61 (0) 420 582 887
Victoria Humphries	NWR Communications	+61 (0) 431 151 676