ASX Announcement

28 September 2016

ASX: BOE

POSITIVE EXPANSION STUDY RESULTS PROGRESS THE HONEYMOON URANIUM PROJECT TO PFS

HIGHLIGHTS

- The Expansion Study was completed, based on results from past operations and indicates strong potential for a highly economic expanded operation. Key results are:
  - Low capital outlay required - US$7 million for plant re-start plus US$57 million for the expansion to 2Mlbs / annum
  - Steady state operating costs are ~US$24/lb U_3O_8 equivalent
- The Study has provided the necessary confidence for the Company to proceed to the next phase of study (Pre-feasibility Study) with a decision to mine expected by end 2017
- A hybrid ELUEX process will be studied in detail in this next phase
- Next phase of activity is to include exploration on the 2,595km^2 highly prospective tenement package

Cautionary Statement concerning Expansion Study Results including Inferred Resources

Boss Resources (the "Company") has concluded that it has a reasonable basis for providing the forward looking statements and production targets discussed in this announcement. The detailed reasons for that conclusion are outlined throughout this announcement and in Appendix I and all material assumptions are disclosed in this document and in the JORC table disclosures of the relevant Resource Statements. The detailed assumptions regarding the Resources are outlined in the announcements 'Substantial Increase And Upgrade In Honeymoon Uranium Resource' dated 20 January 2016 , 'Boss Increases Honeymoon Uranium Project Resource' dated 8 April 2016, 'Maiden Resource of 5.2Mlb for Jason's Deposit' dated 14 June 2016 and available to view on www.bossresources.com.au.

This announcement has been prepared in accordance with the JORC Code (2012) and the ASX Listing Rules. The Company advises that the Expansion Study results, Production Targets and any Financial Information contained in this announcement are preliminary in nature as the conclusions are in-part based on low-level technical and economic assessments, and are insufficient to support the estimation of Ore Reserves or to provide an assurance of economic development at this stage. The outcomes of the Expansion Study however provide a reasonable basis for the Company to release the results whilst not providing an assurance of economic development at this stage. This is based on the current mining inventory indicating that for the first 3 years of production all of the material can be sourced from the Measured & Indicated Resources. Further to this 80 percent of production from Years 4 and 5 can be sourced from Measured & Indicated Resources and that for the Gould's Dam expansion all of the material for the first 4 years can be sourced from the Measured & Indicated Resources.

The Australian Securities and Investments Commission (ASIC) released Information Sheet 214, which concerns forward-looking statements by mining and resource companies (INFO 214). One of the matters raised is that forward-looking statements should only be made if the entity has reasonable grounds for

Suite 23, 513 Hay St, Subiaco WA
P: +61 (8) 6143 6730
E: admin@bossresources.com.au
ABN 38 116 834 336

concluding that funding will become available to the entity as and when required by the project's development or production schedules. Additional funding will be required by Boss Resources to bring the Project into full production stage. The original Honeymoon plant with a design capacity of 0.88Mlbs U_3O_8 is currently on care and maintenance and is capable of being restarted with minimal capital expenditure. Boss has a current market capitalisation of ~A$50 million and has successfully raised ~A$8 million over the last 12 months which is in line with the required re-start capital of US$7 million (A$9 million) - see Appendix I.

The Board confirms that the results from the Expansion study are positive and that this justifies the Company committing to the next stage of exploration and development by progressing through to the Pre-feasibility Study.

THE HONEYMOON EXPANSION STUDY IN SUMMARY

Boss Resources Limited (ASX: BOE) ("**Boss**" or the "**Company**") is pleased to announce that it has received positive results from its recently completed Expansion Study ("**Study**") on the Honeymoon Uranium Project ("**Project**").

The Honeymoon Uranium Project is located in South Australia, approximately 80km north-west from the town of Broken Hill near the SA / NSW border. The Project consists of two main exploration areas (the Eastern and Western tenement regions) and comprises 1 granted Mining Lease and 5 granted Exploration Licenses with a number of associated retention and miscellaneous licences.

The Board considers the results of this Study as positive and justifying the project moving to the pre-feasibility study ("**PFS**") stage. This Study has identified and detailed the opportunity to restart the existing plant (0.88Mlbs/annum) for minimal cost and to operate this during the construction of the expansion. This will generate early cash flow and ramp-up production from the wellfields more effectively.

The Mineral Resource Estimate ("**Resource**") used for the Study totals 57.8mlbs of contained U_3O_8 equivalent for the Honeymoon Project (see Table 1) and was reported in accordance with the JORC Code (2012). The current mining inventory indicates that based on an assumed production profile staged to ramp-up to a final production of 3.6Mlbs U_3O_8 equivalent / annum the following assumptions can be made:

- for the first 3 years of production all of the material can be sourced from the Measure & Indicated Resources;
- for Years 4 and 5, 80 percent of production can be sourced from Measured & Indicated Resources;
- for the Gould's Dam expansion all of the material for the first 4 years can be sourced from the Measured & Indicated Resources; and
- Overall 50% of the production for the first 9 years can be sourced from the Measure & Indicated Resources

Table 1 – Global Honeymoon Mineral Resource (June 2016) Reported above a preferred 250ppm eU_3O_8 lower cut-off				
Classification	**Tonnage (Mt)**	**Grade (ppm eU_3O_8)**	**Contained U_3O_8 (Million Kilograms)**	**Contained U_3O_8 (Million Pounds)**
Measured	1.7	1720	3.0	6.5
Indicated	5.9	810	4.8	10.6
Inferred	32.5	569	18.5	40.7
Total	**40.1**	**654**	**26.2**	**57.8**
Note: Figures have been rounded. Total adjusted to account for historical production of ~335 tonnes U_3O_8.				

The Study was undertaken by GR Engineering Services Limited ("GRES") with Australian Nuclear Science and Technology Organisation ("ANSTO") undertaking preliminary test work on selected resins and organics for the proposed ion exchange and solvent extraction circuits.

The Study carefully considered the issues that had affected the performance of the plant with the previous owners and included solutions in the design criteria, process routes and cost estimates to solve these problems. The key issue during the previous operating period was the inability to maintain the required uranium tenor in the feed to the plant. The design specification called for a feed tenor of 75mg/l U_3O_8, whilst on a continuous basis an average tenor of only 53mg/l U_3O_8 was achieved (30% reduction). As the plant is volumetrically constrained this means a 30% lower production. This Study assumed a feed grade of only 45mg/l U_3O_8 (15% lower than that achieved during operations) and designed the expansion to meet the required production at these lower tenors.

The base case investigated at a high level for the Project considered an initial 2Mlb/annum operation ramping up to 3.6Mlbs/annum (potentially in the fifth year of operation). The cost estimates for this base case indicate an initial capital expenditure of ~US$7 million would be required for the restart of the existing plant with a further expenditure of US$57 million to achieve a 2Mlbs/annum throughput. In addition US$85 million would be required to bring Gould's Dam online and ramp-up to 3.6Mlbs/annum. The steady state operating costs determined for each of these design throughputs are shown in Table 2 below. The estimates were prepared to an accuracy of +50% to -30% (Q32016) and are based on first principles as well as information derived from the original Honeymoon design and operation.

Table 2 – Expansion Study Steady State Operating Cost Estimates		
	2.0Mlb / annum Operation	**3.6Mlb / annum Operation**
Operating Costs		
Wellfield	$0.10	$0.10
Plant	$16.40	$15.30
Marketing, Shipping & Royalties	$4.50	$4.50
General Sustaining Capex	$0.50	$0.50
Wellfield Development	$2.60	$2.60
Total (US$/lb U_3O_8)	**$24.10**	**$23.00**

* Note: figures have been rounded; exchange rate of A$1.00 = US$0.75 was used

The Project area offers substantial potential to expand the current Mineral Resource inventory. The intention of the next phase of the Project is to carrying out an infill drilling program for the area associated with the Jason's deposit and to continue with the exploration program. Success with this program would delay any expansion at Gould's Dam and thereby push out any capital expenditure to later in any proposed schedule.

In addition, the technical studies in the next work phase will confirm the selection of a preferred processing technology, optimise the production profile, review wellfield design and development scenarios, deliver a series of targeted studies to validate a number of assumptions made in the Expansion Study and determine a mineable resource that could be converted to an Ore Reserve.

The PFS, which incorporates the activities described above, is planned to start in Q4 2016 and is estimated to take approximately 6 months to complete.

EXPANSION STUDY RESULTS

The aim of the Study was to select a processing technology that would be a 'best-fit' to the existing plant for the proposed expansion. At the same time the issues identified in the earlier reviews were to be further defined and the plant design modified to take these into account. Most significantly the feed tenor from the wellfields was set at 45mg/l U_3O_8 (in line with the steady state operating data and the AMEC expansion study previously undertaken).

The Study was split into two phases; the first phase addressed the selection of the preferred processing route, while the second phase built on this selected route by further developing a conceptual production schedule and addressing the technical issues previously defined i.e. the gypsum fouling within the wellfields and organic contamination, through an expanded water treatment plant and installation of organic removal processes.

The results of the first phase Option Study and the further development of the selected option are described in the following sections.

Option Study

The first phase Option Study looked at four process options to achieve an expanded production of 2Mlb/annum of U3O8 utilising only the near plant wellfields (i.e. no satellite wellfields) and assuming a plant feed tenor of 45mg/l U3O8.

The four process routes considered were:

- Expansion of the existing solvent extraction (SX);
- Replacement of the SX entirely with ion exchange (IX) using a weak base anionic (WBA) resin;
- Augmentation of the existing SX in an Eluex arrangement with IX using a chelating resin; and
- Hybrid Eluex – Split flow of pregnant leach solution (PLS) to IX using chelating resin and the existing SX, with IX eluate also feeding to the SX.

GRES developed capital, operating and plant sustaining costs for the four options from a combination of first principles, information from the original Honeymoon design, data from the previous operations at Honeymoon and recent metallurgical test work carried out by ANSTO.

The analysis showed that the plant operating costs for the four options varied between US$15.30 and US$17.00/lb U_3O_8 (the direct IX option being the lowest) and that the capital cost estimates varied between US$46 million and US$67 million (the hybrid Eluex substantially lower than the others).

In addition to the four options above, the SX option and Hybrid Eluex options were also considered with an early commencement of production using the existing SX plant in parallel with the construction of the expansion.

Using this cost information a preliminary cash flow model was developed that showed that the Hybrid Eluex option with an early start to production has the best economics for the Project. A high level risk assessment was also carried out on each option and based on this and the economic results the Hybrid Eluex option was selected as the preferred processing route.

The go-forward case for the second phase of the Study assumed the following:

- Operation of the existing SX plant, with minor modifications, during the period of construction of the IX system;
- Ramp up of plant capacity from 2Mlb/annum to 3.6Mlb/annum U_3O_8 in year 5 of operation coinciding with the commencement of operations at Gould's Dam;
- Jason's deposit operated with pumping of pregnant leach solution (PLS) and barren leach solution (BLS) between the Honeymoon processing facility and the wellfields;
- Gould's Dam deposit operated with a satellite plant with resin transfer back to the Honeymoon processing facility for elution via truck.

Wellfield Operation

The Study proposes that wellfields for the project will be developed in all the three regions; near the Honeymoon facilities, at the Jason's deposit and near the Gould's Dam deposit. The Jason's and Gould's Dam deposits lie approximately 15 km and 75 km respectively from the existing Honeymoon mine site.

Each wellfield is assumed to consist of a series of injection wells and extraction wells drilled into a "pattern" with a central extraction well. The wells need to be screened at the ore zone to ensure that the leach solution is, as much as possible, directed through the ore zone. A single wellfield consists of a number of patterns fed from a central pump-house and filter-house. The wellfields at each deposit are considered to be identical other than the source of power.

Prior to operation the groundwater in the wellfields need to be conditioned by purging with water from the aquifer and using sodium carbonate to remove calcium from this in the water treatment plant before recirculating.

The Honeymoon deposit (including East Kalkaroo and Brook's Dam) is assumed to continue to be operated in a similar manner to the operation prior to the shutdown. Improvements with regard to pumping pressures, screen placements and leach liquor characteristics are planned to be undertaken based on the results of the studies planned.

The Jason's deposit is located approximately 15 km from the Honeymoon processing plant and as such it is assumed that the BLS and PLS solutions will be pumped between the two locations. This needs to

be done in a fully welded pipe with dedicated pumps at each end. Operations at Jason's are based on using power locally generated with hire generating sets.

The Gould's Dam operation (located approximately 75 km from the Honeymoon processing plant) considers satellite plants operating with the transfer of the uranium to the central processing facility via resin. The BLS and PLS solutions are thereby maintained in a closed loop with new resin columns, reagent systems, PLS and BLS ponds and a water treatment plant required to be constructed at the new site.

The wellfield design and detailed operating strategy was not included in the scope of this Study, instead historical data was used to help define possible production profiles.

Plant & Processing

The go-forward case selected for the Study assumed that the expansion to 3.6Mlb/a U_3O_8 can be executed in four stages. These stages are described below and shown schematically in Figure 1.

Stage 1 – SX Only

For Stage 1, the Study proposes that the existing SX processing facility is recommissioned with modifications to resolve processing issues that were identified during the original commissioningperiod.

The key additions to the process are assumed to be:

- Booster pumps at the wellfields to boost the feed pressure to the injection wells to improve in-situ leach (ISL) performance;
- Jameson cells to remove organic from SX raffinate;
- Carbon filters and reconfiguration of the crud centrifuge to recover organic from loaded strip solution; and
- Minor modifications as required to the existing WTP such that it is capable of continuously processing 100 m^3/h of BLS bleed solution

The remainder of the process plant is assumed to be unchanged from the existing facilities.

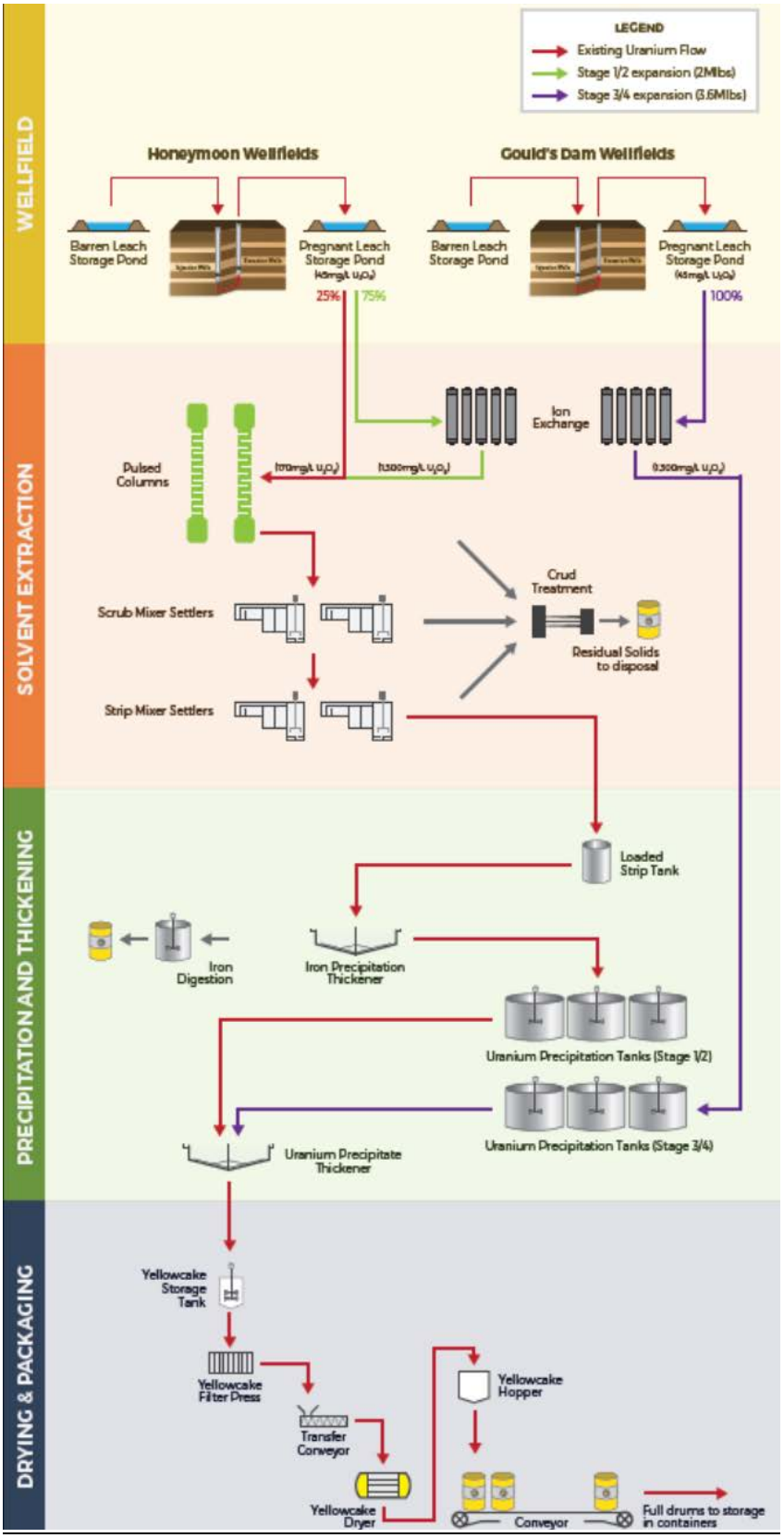

Figure 1: Honeymoon Expansion Plant

Stage 2 – Hybrid Eluex Expansion at Honeymoon

Stage 2 is designed to supplement the re-commissioned SX facility (Stage 1) with a new IX circuit, using a chelating resin, and associated processing infrastructure needed to process the additional PLS that will need to be generated from the Honeymoon wellfields for an expanded production of 2Mlb/annum U_3O_8.

The Study proposes that the additional facilities required for Stage 2 will include:

- Expansion of the existing PLS and BLS ponds to accommodate the higher flowrates from the wellfields and installation of larger pumps;
- IX adsorption and elution facility, using chelating resin, to process 76% of the PLS and produce a high tenor eluate;
- Nano-filtration to recover acid from IX eluate to the permeate for recycle back to eluant make-up;
- Replacement of the existing precipitation circuit with a proprietary fluidised bed precipitation package to produce coarser $UO_4 \cdot 2H_2O$ product from the loaded strip liquor from the SX and thereby increase the existing filtration and drying capacity;
- Additional oil heater, vacuum/off-gas system and other minor changes to the existing product filtration and drying to allow concurrent operation of the existing dryers and increase the drying capacity of the existing drying facility; and
- A new WTP to remove calcium and sulphate from a bleed stream from the BLS, leaving the existing WTP for wellfield commissioning only.

Stage 3 – Development of Satellite Operations at Gould's Dam

Stage 3 considers the expansion to 3.6Mlb/annum of U_3O_8 equivalent through the construction of an IX adsorption and resin transfer facility at Gould's Dam, a resin transport facility, additional IX elution, a precipitation circuit at Honeymoon and an expansion of the product dewatering and drying systems. The new facility has been designed to produce 1.6Mlb/annum of U_3O_8 to supplement the 2Mlb/annum U_3O_8 production from the Stage 2 facility.

The Study proposes that the additional processing facilities required for Stage 3 will include:

- PLS and BLS ponds and pumps at Gould's Dam;
- IX adsorption at Gould's Dam, using WBA resin, to extract the uranium from the PLS and load it onto the resin for transport to Honeymoon;
- Trucks to transport loaded and eluted resin between the satellite and Honeymoon sites;
- IX elution system at Honeymoon, eluting the WBA resin with 1M NaCl solution to produce a uranium rich eluate;
- Nano-filtration to recover NaCl from IX eluate to the permeate for recycle back to eluant make-up;
- Fluidised bed precipitation unit to generate $UO_4 \cdot 2H_2O$ product from strong eluate;
- Centrifuge package for filtration and precipitate washing, processing all of the yellowcake production at Honeymoon;
- Rotary kiln dryer to process all of the yellowcake and produce a UO_3 product which will feed to

the existing packaging system.

- WTP at Gould's Dam to remove calcium and sulphate from a bleed stream from the BLS and groundwater in new wellfields; and
- Reagent systems at Gould's Dam.

Stage 4 – Expansion of Gould's Dam

For Stage 4, it is assumed that the resin loading capacity at Gould's Dam will be increased by relocating two resin adsorption columns from the Honeymoon processing facility, to Gould's Dam. With the relocation, the resin will be changed from a chelating resin to a WBA resin that will be eluted by 1 M NaCl solution, as per the Stage 3 expansion concept.

Infrastructure

Power

Power supply for the existing Honeymoon site is via overhead transmission line from the national electrical grid from Broken Hill and Cockburn. The power is then reticulated by high voltage cable and overhead power line to the processing facilities, infrastructure and wellfields at Honeymoon. The Study assumes that the process plant expansion and future well fields developed in the Honeymoon vicinity will be connected into this high voltage reticulation network.

Power for wellfield operation and PLS transfer at the Jason's depsoit is assumed to be generated at site by local diesel fuelled generating sets. The generating sets for the Jason's deposit can be installed on a hire basis with refuelling and maintenance on a contract basis from the hirer.

The Study proposes power for the operations at Gould's Dam will be from a Build Own Operate (BOO) diesel fuelled power station with high voltage power reticulated to the plant, infrastructure and wellfields by underground cable. The BOO power contractor will provide the generating sets, fuel farm and maintenance facilities along with the operators and maintenance personnel.

Roads

The existing site access road to Honeymoon, approximately 20 km long, can be utilised for access to the site from the state road network. It is assumed the new Gould's Dam access road will be an unsealed road of approximately 75 km in length with a pavement width of eight metres.

The Study assumes both the Honeymoon and Gould's Dam access roads will be maintained on a contract basis with maintenance consisting of drainage channel clearing, profile re-shaping and minor repairs.

Water

Water for the Honeymoon site can be provided from the existing raw water bores. The Study proposes that water for the Gould's Dam site will be provided from two additional bores drilled in non-ore paleo channels close to the site.

Waste liquid from the sites is considered to consist of at least:

- BLS bleed;
- WTP sodium purge;

- Potable water plant brine;
- Grey water;
- Clean-up of spillage from reagents areas; and
- Water collected in the storm water pond.

The Study assumes the waste water will be collected at Honeymoon and Gould's Dam in solid retention ponds to remove any suspended solids prior to re-injection into existing disposal wells at Honeymoon and new disposal wells at Gould's Dam.

Camp

The Study proposes that the existing camp at Honeymoon can be utilised for all stages of the operation. Personnel carrying out duties at Gould's Dam will need to travel between the two sites at the beginning and end of shift by light vehicle.

Buildings

The Study proposes that the existing administration building, maintenance workshop, stores and associated facilities at Honeymoon will be supplemented with additional facilities at Gould's Dam to support the satellite operations. These new facilities are assumed to include:

- Plant control room;
- Office building with offices along with a small meeting room, crib room;
- Ablutions;
- Workshop and stores buildings; and
- Offices.

Airstrip

The Study assumes that the existing Honeymoon airstrip will be rehabilitated as required and utilised for the operations. Further to this the airstrip will be maintained on a contract basis as part of the road maintenance contract.

Capital and Operating Costs

GRES developed the capital and operating cost estimates. The capital costs presented only include the costs for the processing plant expansion and modifications and do not include pre-production costs such as initial wellfield development, pre-production labour, corporate costs, feasibility study costs etc. The capital costs were developed from first principles based primarily on the process design criteria, process flow diagrams and mechanical equipment lists and include a 12.5% contingency.

Processing operating costs were developed largely from first principles based on the process design criteria, capital costs, mechanical equipment list and an assessment of operational requirements. Some historical cost data from the Honeymoon operation was utilised to assist in developing allowances for existing areas of plant and some of the general and administration costs.

Sustaining capital costs have been developed from typical allowances for general sustaining capital as a percentage of capital costs. The sustaining capital costs for ongoing wellfield development and allowances for road and airstrip maintenance and additional gypsum pond requirements are also

included. The wellfield development costs have been based on historical cost data from the Honeymoon operation.

The costs are accurate to -30% to +50% and have been developed in Australian dollars at 3Q2016 and converted to United States dollars at an exchange rate of A$1.00 = US$0.75. The costs for the first two development stages are summarised in Table 3. The Stage 1 – SX only phase covers only the first year of operation during which the ramp-up of the wellfields and plant occurs and as such the operating cost are high. A steady-state Stage 1 operation (0.88Mlbs) is expected to have an AISC of US$35-40/lb U_3O_8 based on increased production and optimised fixed costs.

Table 3 – Expansion Study Cost Estimates

	Stage 1 SX Only	**Stage 2 Expansion with Hybrid Eluex**
Nominal Production Rate (Mlbs/annum)	0.51	2.0
Operating Costs (AISC)		
Wellfield	$0.05	$0.10
Plant	$40.50	$16.40
Marketing, Shipping & Royalties	$4.50	$4.50
General Sustaining Capital	$0.90	$0.50
Wellfield Development	$4.10	$2.60
Total (US$/lb U_3O_8)	**$50.00**	**$24.10**
Plant Capital Cost (US$)	**$7M**	**$57M**

* Note: figures have been rounded

PERMITTING & ENVIRONMENTAL

Mining at Honeymoon is endorsed by the local indigenous communities with Native Title agreements in place and signed with the Adnyamathanha and Kuyani people. Mining and uranium export permits (both State and Federal) are still valid for the existing operation (i.e. 0.88Mlbs/annum production) which means production can commence at Honeymoon with a very short lead time.

As part of the next phase of the Project the necessary baseline studies, assessments, management plans etc. will need to be developed before the existing plant can expanded to 2Mlbs/annum and before the wellfields can be developed at the Jason's deposit. The environmental and permitting requirements for Gould's Dam also need to be defined, however the Study envisages that this deposit will only be brought into production at a future date and as such the activities associated with these permits can be undertaken during operation phase.

UPSIDE POTENTIAL

During the course of the Study a number of potential upsides to the project were identified that would either de-risk the project further or potentially improve on the economics through reductions in capital costs and/or reductions in overall operating costs. At a high level these opportunities include:

- Increased uranium tenors in the wellfield tenors by improving leach conditions and potentially

solution “stacking”

- Reduced number of ion exchange columns by increasing the wellfield tenors
- Increased Mineral Resources in the near mine deposits by converting exploration targets into resources
- Increased effectiveness of wellfield design
- Reduction in wellfield development costs
- Reduction in reagent consumptions
- Reduction in gypsum fouling within wellfields through improved wellfield management, leach conditions and continuous operation of the groundwater treatment plant.

FORWARD WORK PLAN

The next phase of work for the project development will focus on further evaluation and refinement of the Project taking into account the upside potential identified and aimed at fully defining the scope and de-risking the Project as far as possible. Aspects of the Project that are to be covered include:

- Resource drilling and geological modelling;
- Wellfield production optimization;
- Wellfield development plan;
- Determination of the mineable resource and potential Ore Reserve declaration;
- Metallurgical test work;
- Trade-off studies and development of design basis;
- Process plant evaluation, engineering and costing;
- Infrastructure evaluation, engineering and costing;
- Overall capital and operating cost estimation;
- Permitting and Licensing; and
- Implementation planning.

Competent Persons' Statements

The information in this document relating to the Mineral Resources is extracted from the announcements entitled 'Substantial Increase And Upgrade In Honeymoon Uranium Resource' dated 20 January 2016 , 'Boss Increases Honeymoon Uranium Project Resource' dated 8 April 2016, 'Maiden Resource of 5.2Mlb for Jason's Deposit' dated 14 June 2016 and is available to view on www.bossresources.com.au. The information relating to the Exploration Target is extracted from the announcement entitled 'Honeymoon Project Exploration Update' and dated 8 December 2015. The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcements and that, in the case of Mineral Resources or Ore Reserves, all the material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcements.

Assumptions on the plant design factors and costs as related to the broader Expansion Study are provided by Mr Stewart Watkins. Mr Watkins is an employee of GR Engineering Service Limited and is a Fellow of the AUSIMM. Mr Watkins has sufficient relevant experience to qualify as a competent person as defined in the 2012 edition of the "Australasian Code for Reporting of Mineral Resources and Reserves". Mr Watkins has consented to the inclusion of this information in the document in the form and context in which it appears.

For further information, contact:

Evan Cranston: +61 (0) 408 865 838
Grant Davey: +61 (0) 447 753 163

Appendix I

Supporting, Forward Looking and Cautionary Statements

This announcement has been prepared in accordance with the JORC Code (2012) and the ASX Listing Rules. The Company advises that the Expansion Study results, Production Targets and any Financial Information contained in this announcement are preliminary in nature as the conclusions are in-part based on low-level technical and economic assessments, are insufficient to support the estimation of Ore Reserves or to provide an assurance of economic development at this stage.

The Company notes that an Inferred Mineral Resource has a lower level of confidence than an Indicated or Measured Mineral Resource and that the JORC Code 2012 advises that for an Inferred Mineral Resource it is reasonable to expect that the majority of the Inferred Resource could be upgraded to an Indicated Mineral Resource with continued exploration. Based upon the advice from relevant Competent Persons, the Company is confident that a significant portion of the Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with further exploration work.

The Company believes it had a reasonable basis for making the forward-look statements in this announcement, including Production Targets and cost information, based on this announcement and including the following:

- *For Mineral Resources, the Company confirms that all material assumptions and technical parameters that underpin the relevant market announcements continue to apply and have not materially changed.*
- *Further extensive resource drilling is planned in each of the subsequent study phases and there is a reasonable expectation, based on historical results, that the majority of the Inferred Mineral Resource can convert to Indicated Mineral Resource*
- *The Boss Resources Board and core technical team have a strong technical skill-set and four members of the team have direct uranium experience in the engineering, geological and environmental fields.*
- *Boss Resources current market capitalization is ~A$50 million and has successfully raised ~A$8 million over the last 12 months.*
- *The Boss Resources Board has had previous success in raising capital for mining projects of this nature.*
- *There is strong broker support for the project with two major broking firms indicating an interest in being considered to assist with the provision of funding for the project through debt, equity or partnership.*
- *The Honeymoon Project is unique in that it includes a modern ISL plant and significant mine infrastructure which is currently on care and maintenance.*
- *The Honeymoon project region has mining, environmental and export approvals (State and Federal) which are currently on-hold and can be easily re-activated when mining resumes.*
- *Mining at Honeymoon is endorsed by the local indigenous communities with Native Title agreements in place and signed with the Adnyamathanha and Kuyani people.*
- *GR Engineering Services (GRES) have been used to conduct the technical aspects of the study. GRES and their appointed consultants have experience in designing uranium processing plants and in executing projects in Australia.*

Appendix II

PROJECT BACKGROUND

The Honeymoon Uranium Project is located in South Australia and is 80km north-west from the town of Broken Hill near the SA / NSW border.

Mining at Honeymoon is endorsed by the local indigenous communities with Native Title agreements in place and signed with the Adnyamathanha and Kuyani people. Mining and uranium export permits (both State and Federal) are in still valid which means production at the original design throughput can commence at Honeymoon with a very short lead time.

Prior to the start of this Expansion Study (and as part of the purchase due diligence exercise) a detailed technical review was undertaken to identify the issues that impacted the plant prior to being placed on care and maintenance, optimisation opportunities and cost reduction strategies that could form the basis for a planned redesign and start-up. This assessment indicated problems with wellfield performance that led to lower feed grades to the plant and that further to this the plant production rate was too low, even if design throughput was reached, for a sustainably profitable uranium mine at current depressed uranium prices. These economics were due to the sizing of the operation (0.88Mlbs/annum) which made the cost structure for Honeymoon inefficient, with a high proportion of fixed costs within the overall cash cost for the mine.

Boss therefore proposed that a larger processing plant facility, with the possible use of resin technologies, could significantly reduce the cost of production. Boss in the meantime announced a 330% total increase of the Global Honeymoon Resource based on a detailed review of the existing drilling data. Importantly part of the resource increase comes from deposits located approximately 70km away from the main processing plant. It is believed that these deposits could be effectively treated with the use of satellite ion exchange processing units.

As a result, Boss initiated this Expansion Study focussing on expansion scenarios and processing routes. At a high level three main processes were initially considered in the Study:

- Optimise and expand existing solvent extraction plant
- Implement a combined ion exchange and solvent extraction process (Eluex)
- Implement an ion exchange only process

The preferred route identified based both on economics and project risk was hybrid of the Eluex process that maximised the utilisation of the existing equipment at Honeymoon. This was then further developed to provide a base case to carry forward to the next phase of the Project (the Pre-feasibility Study). At the same time possible production scenarios were assessed to determine an optimal ramp-up strategy and maximum final production capacity.

Figure A1:*Honeymoon Uranium Process Plant*

PROJECT DESCRIPTION AND TENEMENTS

Honeymoon is located between the Olary Ranges and Lake Frome, and forms part of the south-eastern extremity of the Lake Eyre drainage system. Broad, gently undulating alluvial plains dominate the region, representing sedimentary deposition since the beginning of the Tertiary period (approximately 65 million years ago).

The Project consists of 1 granted Mining Licence, 5 granted Exploration Leases, 8 Retention Leases and 2 Miscellaneous Licenses (see Table 3). The Honeymoon mining infrastructure is located on ML6109 which hosts one of the highest grade ISL Mineral Resources in Australia (1.44Mt @ 0.21% U_3O_8) and has produced some 335t of U_3O_8 from 2010 to 2012.

There are 2 main exploration regions: the Eastern Region (EL's 5215 and 5621) which hosts the Honeymoon, Brooks Dam and East Kalkaroo Resources; and the Western Region (EL's 5043, 5623 and 5622) which hosts the Goulds Dam and Billeroo deposits which have historical Mineral Resource estimates (see Figure A2).

Boss entered into an agreement with Uranium One Inc. in July 2015 to acquire 80% of the Honeymoon Uranium Project in South Australia. The acquisition was completed in December 2015 with Wattle Mining Pty Ltd ("Wattle") holding the remaining 20%. Boss holds an option to acquire Wattle's 20% post completion of a Bankable Feasibility Study (BFS).

Table A1: Honeymoon Project Licenses - July 2015
(100% Owned by Boss Resources Ltd)

License	Name	Project Region	Grant Date	Expiry Date	Area (km^2)
Mining License					
ML 6109	Honeymoon Uranium Mine	Eastern	8/02/2002	7/02/2023	10
Exploration Leases					
EL 5215	South Eagle	Eastern	26/09/2012	25/09/2017	379
EL 5621	Yarramba area	Eastern	29/05/2015	28/05/2017	452
EL 5043	Glenorchy	Western	23/02/2012	22/02/2017	778
EL 5623	Goulds Dam	Westen	29/05/2015	28/05/2017	334
EL 5622	Katchiwilleroo Dam	Western	29/05/2015	28/05/2017	652
					Total: 2,595

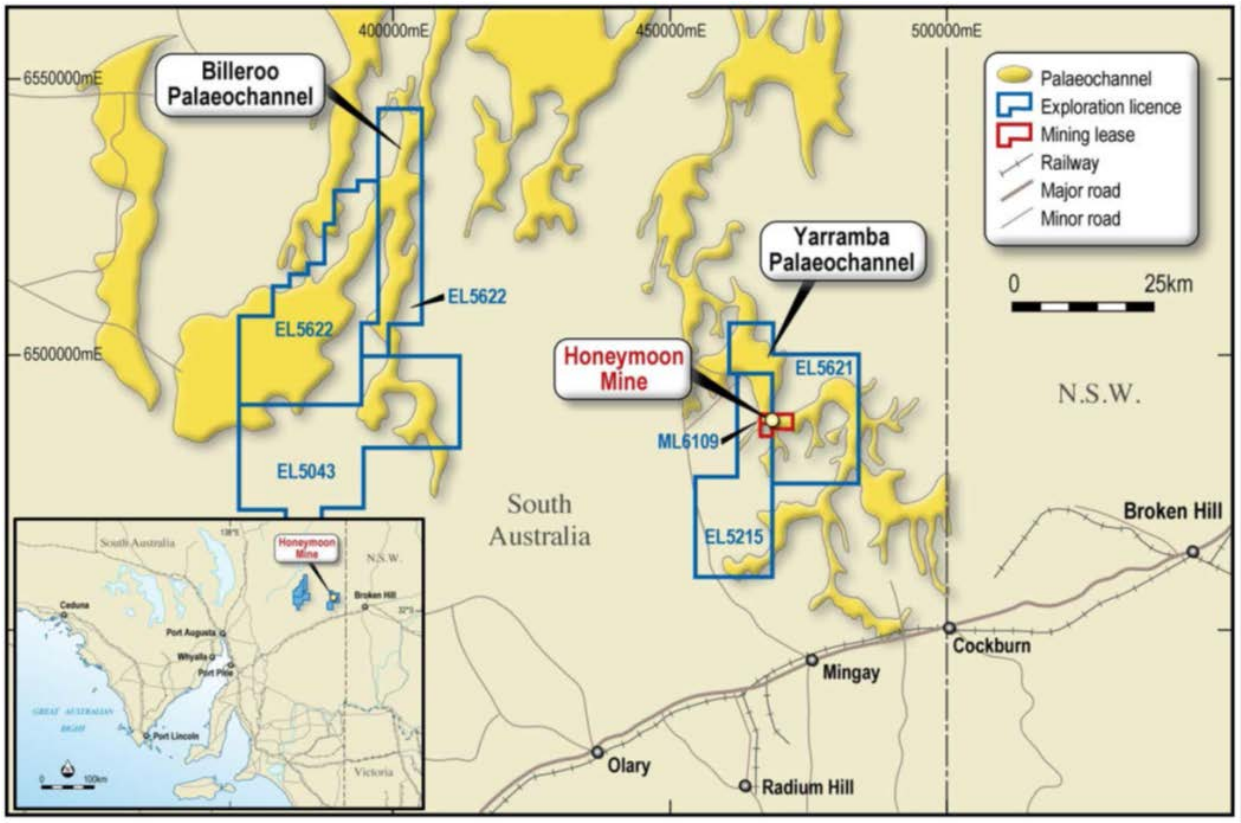

Figure A2: *Honeymoon Uranium Tenements*

HISTORY

Ore-grade uranium was first discovered in Tertiary paleochannel sediments at Honeymoon in 1972 by the Minad-Teton-CEC Joint Venture. However, as ISR mining methods were not fully developed in the early 1970's, it was not until the late 1970's that the feasibility of uranium extraction at Honeymoon was identified.

In 1982, following the Commonwealth and State governments' approval of an Environmental Impact Statement (EIS) for the project, Minad established a demonstration ISR operation at Honeymoon. The demonstration or trial leach operation included:

- A 6 L/s wellfield;
- A liquid disposal well;
- A demonstration processing plant designed to treat pregnant leach solution (PLS) at a rate of 25 L/s;
- Supporting infrastructure.

Before the wellfield or the demonstration plant could be commissioned, a change of State Government in South Australia and shortly after a change in Commonwealth Government deferred the final 'Approval to Mine' and the project was placed under 'care and maintenance' in March 1983.

During the period of inactivity from 1983 to 1997, infrastructure associated with the plant, such as support buildings and accommodation facilities were removed. Well casings in the pilot wellfield were cut off below ground level and sealed, and most of the area including the airstrip was allowed to return to its natural state. Only the demonstration plant and warehouse remained.

In May 1997, ownership of the Honeymoon Mine was passed to Minad's parent company MIM Holdings, and in the same year acquired by Southern Cross Resources. Associated Miscellaneous Purpose Licences 14, 15 and Retention Leases 10, 11 and 12 were also acquired by Southern Cross Resources in 1997. Southern Cross Resources later became Uranium One Inc.

In 1998, following the granting of State and Commonwealth approvals, Southern Cross Resources conducted a second field leach trial (15 March 1999 and 9 August 2000). This ISR field leach trial utilised five connected well patterns, with several injection wells common to more than one recovery well.

In May 2000, an EIS was prepared by Southern Cross Resources to satisfy State and Commonwealth legislative requirements in granting a Mining Lease (ML) over Retention Leases 10, 11 and 12 and Mineral Claims 3075, 3077, 3078 and 3079. A ML 6109 was granted in 2001, followed by two Miscellaneous Purpose Licence (MPL) 15 and 64 in 2002, and finally MPL 92 in 2008.

In 2007, the Honeymoon Project Construction approvals documentation was prepared and submitted for assessment under the South Australia Mining Act 1971 (Mining Act). Construction was approved by Primary Industries and Resources SA (PIRSA) in early 2008. Construction of the Honeymoon Mine began in the second quarter of 2009 and was completed in the first quarter of 2011.

The Honeymoon Uranium Mine commenced commissioning soon after and was able to produce the first dried and drummed final product in August 2011. Despite this achievement, the Project wasn't able to obtain nameplate capacity throughout the commissioning period only producing approximately 335t of U_3O_8 (equivalent) from 2011- 2013. Owing to the low uranium prices at the time, Honeymoon was then placed into 'care and maintenance' in early 2014 and has not been re-started since. Boss then entered into negotiations with Uranium One in July 2015 to purchase the asset.

PROJECT ASSETS

Access to Honeymoon is via the Barrier Highway to the Mulyungarie Road turn off, 7.3 km west of Cockburn. The turn off is 490 km by road from Adelaide and 52 km from Broken Hill. Access continues on an unsealed rural road, the Mulyungarie Road, heading north from the turn off for 44 km and then west for 23 km of privately maintained access road.

The infrastructure associated with the Honeymoon Uranium Project includes the following key items:

- Solvent extraction processing plant with a capacity to produce 0.88Mlbs of uranium per annum;
- 4 wellfields currently on care and maintenance;
- 200 person operating mining camp;
- Administration buildings;
- 75km power line connecting to mains power;
- A fleet of vehicles, spares and other equipment associated with the commissioning of the project;
- Runway capable of landing light planes; and
- Extensive geological database of 5,000 drill holes and associated logging information.

The sunk capital for the plant and associated infrastructure was A$146 million.

Figure A3: Project infrastructure

GEOLOGY

The Honeymoon Uranium Project is located in the southern part of the Callabonna sub-basin in South Australia. Uranium mineralisation within the project area is hosted by the Yarramba and Billeroo paleochannels (Figure A4). These consist of Paleogene age palaeovalleys filled by a sequence of inter-bedded sand, silt and clay. Thickness of the paleochannels at Honeymoon deposit area reaches a maximum of 55m thick.

The uranium mineralisation represents a classic basal channel type sandstone-hosted uranium roll-front model. This model implies the movement of oxidised, uranium-bearing fluid through a largely reduced aquifer, with mineralisation occurring at the redox front of the fluid. A geochemical zonation is associated with the roll front, including oxidation of the sands upstream (orange and yellow limonite) and abundance of pyrite/marcasites and organic matter downstream. Mineralisation is associated with discreet accumulations of organic matter and pyrite within the palaeovalley sequence.

Distribution of the uranium accumulations within the paleochannels is controlled by fluid pathways that have transported the dissolved uranium and the distribution of organic matter which served as reductants causing precipitation of uranium. Interplay of these two main factors has created a stacked geometry of the "uranium rolls" commonly distributed as elongate pods along the strike of the palaeovalley. These features are similar to the uranium deposits of the Great Divide basin in Wyoming.

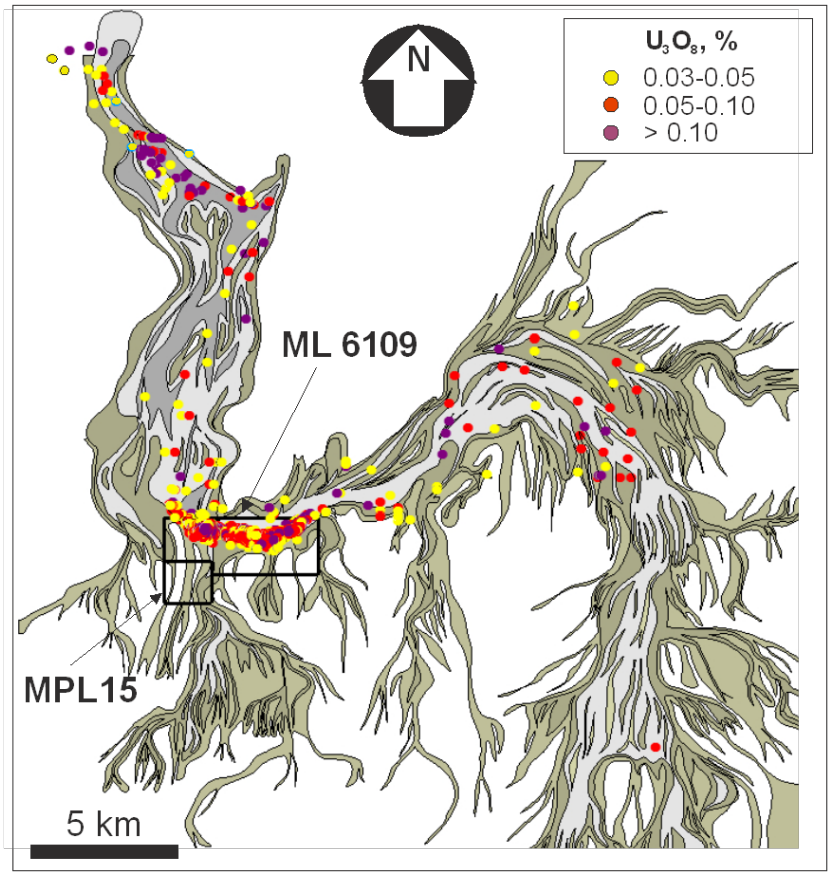

Figure A4: Geological map showing distribution of uranium mineralisation in southern part of the Yarramba paleochannel. Shaded areas denote interpreted thicker conductive paleosedimentary packages, dots are the ore grade drill hole intersections, defined at 300ppm U_3O_8 cut off

RESOURCES

The Mineral Resources for Jasons, Gould's Dam and Honeymoon (inclusive of Brooks Dam and East Kalkaroo) are summarised in Table A2. In total, they contain 40.1Mt of mineralisation at the average grade of 654 ppm U_3O_8, which corresponds to 57.8Mlb of contained U_3O_8 above a 250ppm U_3O_8 lower cut-off.

All Mineral Resources are located below the water table at the depth of approximately 100m and hosted by the palaeochannel sedimentary sequence composed of weakly lithified permeable sands intercalated with clays. Previous hydro-geological test work including a pilot production mining study and the actual Honeymoon operation have confirmed that Mineral Resources are amenable for exploitation using in situ leach technologies.

Table A2 – Global Honeymoon Mineral Resource (June 2016)
Reported above a preferred 250ppm eU_3O_8 lower cut-off

Classification	Tonnage (Mt)	Grade (ppm eU_3O_8)	Contained U_3O_8 (Million Kilograms)	Contained U_3O_8 (Million Pounds)
Jason's Deposit (June 2016)				
Inferred	2.8	840	2.4	5.2
Total	**2.8**	**840**	**2.4**	**5.2**
Gould's Dam Deposit (April 2016)				
Indicated	4.4	650	2.9	6.3
Inferred	17.7	480	8.5	18.7
Total	**22.1**	**510**	**11.3**	**25.0**
Honeymoon Deposits (January 2016)				
Measured	1.7	1720	3.0	6.5
Indicated	1.5	1270	1.9	4.2
Inferred	12.0	640	7.6	16.8
Total	**15.2**	**820**	**12.5**	**52.5**
Global Honeymoon Uranium Project (Western and Eastern Tenement Region)				
Measured	1.7	1720	3.0	6.5
Indicated	5.9	810	4.8	10.6
Inferred	32.5	569	18.5	40.7
Total	**40.1**	**654**	**26.2**	**57.8**

Note: Figures have been rounded. Total adjusted to account for historical production of ~335 tonnes U_3O_8.

EXPLORATION OPPORTUNITIES

The Project contains significant potential for additional Mineral Resources to be defined. Based upon the review of the exploration data (See announcement of 8 December 2015) an Exploration Target of between 32Mt to 78Mt at a grade of between 450ppm and 1400ppm U3O8 has been interpreted for the Project. This point towards a potential target endowment of between 42Mlb and 100Mlb of contained U_3O_8 . The Exploration Target is conceptual in nature and there has been insufficient exploration to estimate a Mineral Resource. It is uncertain if further exploration will result in the estimation of a Mineral Resource.

More locally, analysis of the drilling at the Jason's Deposit and revised geological interpretation indicates that the current resource estimate is conservative due to sparsity of data and lack of infill drilling. An Exploration Target has been estimated for the Jason's Deposit of 3Mt to 6Mt for 5 to 10Mlb of U3O8 with a grade range of 700ppm to 800ppm. Boss will undertake a drilling program in Q4 2016 focusing on extensional and infill drilling with the aim of upgrading the resource at the Jason's Deposit.

Additionally, past exploration drilling has shown that uranium mineralisation continues up and downstream from ML6109 for more than 15km in each direction within EL's 5215 and 5261 (Figures A4). The project database contains some 208 drill holes that intersected ore grade mineralisation, with grades of up to 4,000ppm eU3O8. These regions will also be the focus for exploration targeting.

EXISTING PROCESS DESCRIPTION

Uranium is extracted at Honeymoon using the in situ leaching (ISL) method, and processed using solvent extraction (SX) at a processing plant located adjacent to the ore-body. The processing plant has a design capacity of 0.88Mlbs / annum U_3O_8 equivalent as uranium peroxide ($UO_4.2H_2O$). The uranium process flow is summarised in Figure A5.

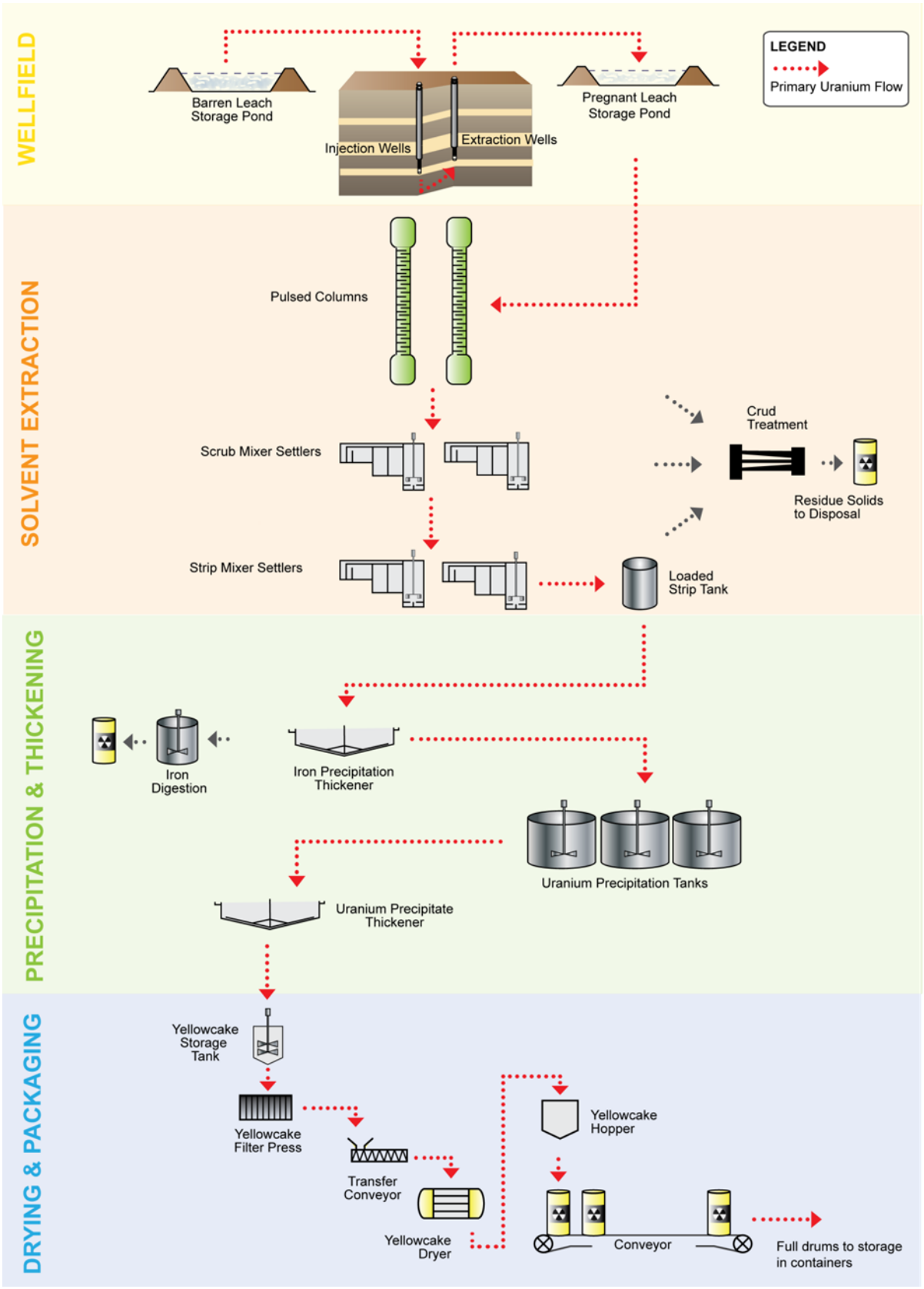

Figure A5: Honeymoon Existing Process Plant

Acidified leaching solution, containing an oxidant, is continuously injected into the ore zone (wellfield) via injection wells and drawn to extraction wells dissolving uranium as the solution passes through the host sand between the wells. The pregnant leach solution (PLS) is then pumped from the extraction wells to the Honeymoon process plant where the uranium is recovered. A tenor of ~75mg/l U_3O_8 is required in the PLS in order to attain the design production rate of 0.88Mlbs/annum.

SX is used to selectively recover and concentrate uranium ahead of the subsequent precipitation stages. Soluble uranium is extracted from the PLS by an extractant blend specifically developed for the Honeymoon PLS, with the objective of being selective for uranium in the presence of chlorides and ferric iron. These contaminants are then partially removed from the organic in the scrub mixer-settlers. In the strip mixer-settlers, the scrubbed loaded organic comes into contact with a sodium carbonate strip solution and uranium is transferred to the aqueous phase. The remaining impurities precipitate from the aqueous phase which are collected and separated in an iron thickener prior to advancing the loaded strip liquor to the uranium product precipitation area.

In a batch precipitation process consisting of three precipitation tanks, the loaded strip solution is precipitated in the uranium peroxide form ($UO_4.2H_2O$) using hydrogen peroxide to produce a yellowcake slurry.

Yellowcake slurry is de-watered using a thickener and then pumped to a storage tank located in the drying and packing plant. The thickened uranium slurry is then pumped to a filter press for further de-watering, where the resulting paste-like slurry discharges into one of two yellowcake dryers. The dried uranium peroxide product is discharged from the dryers into a yellowcake hopper located in the packaging area. The uranium product is packed into top loaded 205 L steel drums and then into sea-containers for road transport and export.