

Lotus Resources Ltd. Feasibility Study Underway Following Strong Results From Technical Studies

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PERTH, Sept. 8, 2021 - [Lotus Resources Ltd.](#) (ASX: LOT, OTCQB: LTSRF) (Lotus or the Company) is pleased to announce that it has commenced a Definitive Feasibility Study (DFS or the Study) for the Company's Kayelekera Uranium Project (Kayelekera or the Project).

The Study follows strong results from multiple technical studies being undertaken which have indicated the potential for significantly enhanced outputs and returns compared to the Scoping Study released in October 2020.

Kayelekera is a proven uranium operation, having successfully produced 11Mlbs U₃O₈ over five years (nameplate production capacity - 3Mlbs/annum), which ceased operations in 2014 due to sustained low uranium prices and was placed on care and maintenance.

HIGHLIGHTS

- DFS to assess the recommencement of production at Kayelekera is underway, expected to be completed by mid-2022
- The Study will incorporate results from multiple technical studies (power supply, ore sorting, acid recovery and tailings) that have demonstrated the potential for reduced operating costs and increased production compared to the Scoping Study
- Ore sorting testwork results indicate a significant step change for the Project, with results seeing grades increase by up to 100% when compared to the feed sample, with high recovery (up to 92%)
 - Ore sorting provides the option to increase production rates and convert lower marginal grade ores that could extend the mine life
- Initial results from the power study indicate a mix of power supply options incorporating connection to the national grid, solar power and energy recovery from the acid plant will be the most reliable and cost-effective option for Kayelekera
 - This could see power cost materially reduced compared to historical operations at Kayelekera and reduced CO₂ emissions
- Assessment of tailings storage facilities is ongoing, with the currently preferred option being to maximise storage in the existing facility and then co-disposal of tailings and waste rock in the depleted open pit
 - This option would reduce the life-of-mine capital cost compared to the Scoping Study
- Acid was historically a significant component of the total operating costs (~14% C1 costs). Reducing acid consumption through ore sorting, installed nano-filtration plant and improved recirculation is being assessed

Keith Bowes, Managing Director of Lotus, commented:

"Whilst this officially kicks off the Definitive Feasibility Study, the Company has been diligently working through a number of technical studies over the course of 2021 that are central to the outcomes of this Study.

Results from the individual technical studies have been impressive, and already indicate significantly improved production rates and/or operating costs compared to our October Scoping Study.

The most notable technical study so far has been the ore sorting work, a technology not available when Kayelekera was previously in production. This aspect alone could see annual production rates more readily increase to the original nameplate of 3Mlbs per annum and this level achieved on a more consistent basis. There is also scope to extend the mine life through conversion of marginal ores into higher grade ores.

Together with the findings of other technical studies, we are confident that a material reduction in operating costs can be achieved.

The Company looks forward to keeping shareholders updated through the year, in what will be a very busy second half to 2021."

Definitive Feasibility Study Underway

The Company released a Scoping Study in October 2020, which set the baseline for the Project (ASX announcement 21 October 2020). This Scoping Study was based on real operating data from previous operations (2009 to 2014) and as such, provided an accurate estimate of potential production rates and costs.

The DFS is expected to build on the results of both the Scoping Study and technical studies undertaken after the completion of the Scoping Study.

The main components of the Study include:

- Finalisation of the technical study work
- Completion of the uranium exploration program
- An updated mineral resource estimate will be undertaken if the exploration results are appropriate to warrant this work
- Enhanced process design incorporating the modifications based on the technical studies
- Geotechnical studies for both the pit design and to address ground movement
- Site visits by various consultants to complete their investigations
- Mine plan and production scheduling
- Tailings dam and water storage dams reviews and expansion scenarios
- Plant refurbishment assessment
- Infrastructure assessments (including acid plant, camp etc)
- Logistics studies
- Closure planning updates

The Company has pre-selected a number of consulting firms to assist in the DFS. Due to travel restrictions imposed by COVID-19 the decision was made to use predominantly South African based consultants, and where possible local Malawian consultants, which is expected to reduce site visits and associated costs.

An indicative timeline for the proposed activities is shown below.

Table 1: Feasibility Study Timeline										
Activity	2021				2022					
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June
Technical studies	X	X	X							
Exploration	X	X	X							
Process design	X	X	X	X						
Geotechnical	X	X	X	X						
Plant and infrastructure		X	X	X	X					
Mine Design and production plan				X	X	X				
Closure planning						X	X			
Cost estimates							X	X	X	
Reporting							X	X	X	X

Technical Studies Update

Ore Sorting - uranium grades improved by up to 100%

The Company has completed two programs of testwork on four samples of run of mine ore (~1 tonne) at the STEINERT testing facility in Perth (ASX announcements 5 July 2021 and 26 August 2021). The STEINERT facility was used as testing is done in a commercial scale ore sorting unit, similar to the potential facility that may be installed at Kayelekera.

The ore sorting work tested two sensors, colour and density. The results show that colour is the main sorting criteria and indicate an upgrade ratio in the feed of 1.7 at recoveries of 86% or an upgrade ratio of 1.5 with 92% recovery (Table 2). This means more uranium in the same mass, which would allow increased production rates for the same tonnage treated.

Ore sorting testwork is continuing, with current testwork including testing additional samples which are being sent from site and upgrading the fines portion of the feed material.

Table 2: Colour and Density Ore Sorting Results			
Sample	Mass Split	Upgrade Ratio	Distribution
Fines (-20mm)	16.5	1.0	16.2
Ore sorter (+20mm)	83.5	1.0	83.8
Concentrate	33.5	2.1	69.9
Middlings	10.6	0.6	5.7
Tails	39.4	0.2	8.2
Products			
Conc + Fines	50.0	1.7	86.0
Conc + Midds + Fines	60.6	1.5	91.8
Head Sample	100	1.0	100

The Company is considering a number of different scenarios to enhance the effectiveness of the ore sorting program, including:

- Maximising annual production rates to the nominal production rate of the back-end circuit (i.e., drying and packing) of ~3Mlbs/annum
- Focusing on the lower grade materials (stockpile and mineralised waste) and converting these from marginal ores to economic feed material for the main process plant
- Further assessment of the option to reduce acid consumption and mill power draw through rejection of barren calcite and silicate materials

Power Supply Assessment

When the Project previously operated from 2009 to 2014, power was generated by diesel generators, which were the only reliable energy source available at that time. Estimated power costs are ~US\$0.28 - \$0.32/kWh based on the current diesel price, with power accounting for ~15% of the C1 costs when the plant was operating.

The Company has looked into a number of options for power supply including:

- Connecting to the national grid
- Generating power from excess heat generated in the onsite acid plant (estimated at 2MW)
- Renewable options, including solar
- Replacement of the existing diesel gensets with a Build-Own-Operate (BOO) contract arrangement

While connecting to the national grid poses a risk in relation to sustained reliability of supply, it could potentially provide the lowest cost option with power unit charge rates ranging from US\$0.06/kWh during off-peak, up to US\$0.18/kWh for on-peak (a weighted average daily cost is US\$0.10/kWh).

Accordingly, the Company expects the optional power solution will incorporate a combination of power supply options, which together, have the capacity to significantly reduce power costs and CO₂ emissions.

Discussions are ongoing with ESCOM, the Malawian electricity supply company, and a Malawian electrical power consultant has been contracted to undertake an assessment of availability and capital and operating costs for connecting to the grid either at the nearby town of Karonga (~50km from Kayelekera) or other

potential substations in close proximity to Kayelekera.

Metso Outotec is preparing the study for recovering energy via a steam turbine from the acid plant and two solar providers have been requested to send proposals for various solar options.

A detailed assessment of the results will be released later this year.

Acid recovery

Acid consumption and the associated costs are a significant component of the operating costs at Kayelekera, accounting for ~14% of the C1 costs. Reducing acid consumption or improving acid recovery within the process, either via the installed nano-filtration plant or through improved recirculation, is therefore an important component of the DFS.

Not only is acid an expensive reagent, but the process itself is acid limited as the onsite acid plant has a maximum capacity of only ~235 tonnes per day sulphuric acid. By reducing acid consumption or recovering more acid, there is an option to maximise plant throughput and production, thereby consuming the additional acid or maintaining the same throughput but reducing the production of fresh acid and therefore related costs.

The acid recovery work has focused on investigating the benefits that ore sorting could have in terms of rejecting the high acid consuming barren minerals from the feed material. Work will now focus on improvements to the already installed nano-filtration circuit (recovers acid from the resin elution circuit) and improved recycling of acid within the leach circuit.

Tailings Storage Facility

The original production schedule from the Scoping Study shows that a second tailings storage facility (TSF) would be required after approximately five years of production. The cost of the initial cell (Cell 1) for the second TSF is ?US\$20M with the second cell (Cell 2) requiring an additional US\$30M.

Deferring the timing of this new build by optimising the existing TSF would be beneficial for Project cash flow, however a more attractive option is to look at using the depleted pit as a disposal area for tailings (and waste rock). This would eliminate the need for the second TSF, and the associated costs, completely. The Scoping Study assumed the pit is mined out during year six of production and the timing may align well for the application of this option.

Tailings consultants have been engaged and are mobilising to site in early September to undertake the site inspections and assess the potential options available.

Exploration

The uranium exploration program is progressing well with the drilling of potential satellite targets (which are located only ~3km south of the process plant) completed and the drilling now focused on the border of the existing resource where potential extensions to the mineralisation have been identified. The first batch of samples have been sent to the assay laboratories in South Africa, however, owing to slower than expected assay turnaround time, results from the program are due in 4Q20.

Subject to the results of the drilling program and the review of the existing geological model and block model, a decision will be made as to whether an updated Mineral Resource Estimate and associated geological / block models should be generated for the Study. Should this be the case, an independent consultant has been identified to undertake this work.

This new model and estimate will then form the basis for the new production schedule and would be used to

generate a new Ore Reserve Estimate for the Project.

This announcement has been authorised for release by the Company's board of directors.

ABOUT LOTUS

[Lotus Resources Ltd.](#) (ASX: LOT, OTCQB: LTSRF) owns an 85% interest in the Kayelekera Uranium Project in Malawi. The Project hosts a current resource of 37.5M lbs U₃O₈ (see table below), and historically produced ~11Mlb of uranium between 2009 and 2014. The Company completed a positive Restart Study¹ which demonstrated that Kayelekera can support a viable long-term operation and has the potential to be one of the first uranium projects to recommence production in the future.

Kayelekera Mineral Resource Estimate - March 2020 ¹				
Category	Mt	Grade (U ₃ O ₈ ppm)	U ₃ O ₈ (M kg)	U ₃ O ₈ (M lbs)
Measured	0.7	1,010	0.7	1.5
Measured - RoM Stockpile ²	1.6	760	1.2	2.6
Indicated	18.7	660	12.3	27.1
Inferred	3.7	590	2.2	4.8
Total	24.6	660	16.3	36.0
Inferred - LG Stockpiles ³	2.4	290	0.7	1.5
Total All Materials	27.1	630	17.0	37.5

For more information, visit www.lotusresources.com.au

¹ See ASX announcement dated 26 March 2020. Lotus confirms that it is not aware of any new information or data that materially affects the information included in the announcement of 26 March 2020 and that all material assumptions and technical parameters underpinning the Mineral Resource estimate in that announcement continue to apply and have not materially changed.

² RoM stockpile has been mined and are located near mill facility.

³ Medium-grade stockpiles have been mined and placed on the medium-grade stockpile and are considered potentially feasible for blending or beneficiation, with studies planned to further assess this optionality.

SOURCE [Lotus Resources Ltd.](#)

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