



## ASX Release

19th January 2023

### Drilling underway at Letlhakane Uranium Project as beneficiation and development studies ramp up.

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#### HIGHLIGHTS:

- **1,500m (PQ) diamond drill program underway to collect up to 2 tonne of uranium mineralisation for a new, detailed beneficiation study.**
- **2010 beneficiation program delivered a 1.5 times uranium upgrade using radiometric sorting but was not incorporated into 2015 feasibility study.**
- **Methods include radiometric sorting, hyperspectral classification and sorting, and gravity sorting.**
- **Beneficiated samples to undergo additional metallurgical testing as part of ramp up in activities at Letlhakane.**

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**A-Cap Energy Limited (ASX:ACB)** has started a 1,500m (PQ) diamond drill core program over 25 holes at its flagship Letlhakane Project in Botswana, host to one of the world's top 10 undeveloped uranium resources (see *Figure 1 and Table 1*).

The program is expected to take up to six to eight weeks and will collect approximately 2 tonne of mineralised material for beneficiation, leaching, and metallurgical testwork already underway.

In conjunction with a ramp up of activities on the ground at Letlhakane being led by new country manager, Mr Peter Sheehan, metallurgical studies comprising mineralogy and ore characterisation will supplement the beneficiation program.

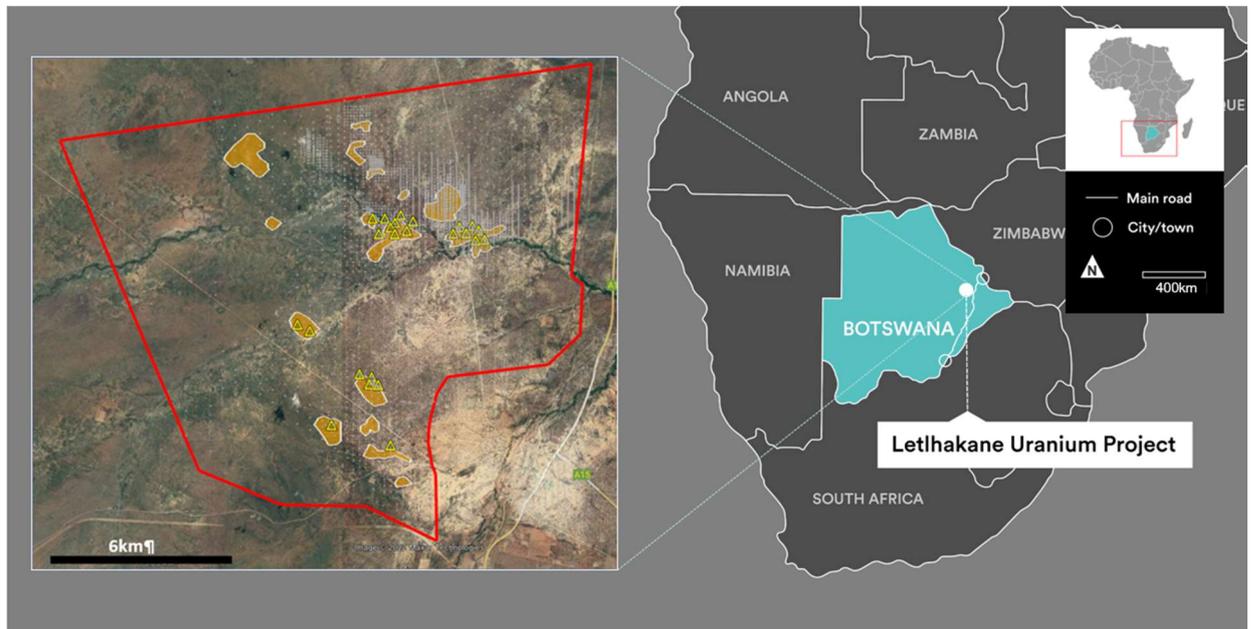
A-Cap's managing director, Dr Andrew Tunks, said advances in sorting technology were a game-changer for the project.

"Our August 2010 beneficiation study reported significant upgrades of uranium grade of around 1.5 times and a reduction of greater than 45% of material in the leaching plant<sup>1</sup> but was not considered in the Letlhakane's 2016 Feasibility Study which forecast an annual production of 3 million pounds (Mlbs) from an open pit mining," Dr Tunks said.

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<sup>1</sup> Refer ASX release 18 August 2010 *Radiometric sorting reports positive results*

“Sorting technology has improved remarkably since that time leaving our technical team led by experienced process metallurgist Noel O’Brien very confident that we can improve the project’s economic significantly.



**Figure 1.** Proposed drillhole location plan shown left. Yellow triangles represent drill collars. Orange shapes are optimised open pit shells from 2015 feasibility study

### Beneficiation Studies

To increase Letlhakane’s profitability, A-Cap has engaged technical partners with world-leading expertise in uranium ore sorting and processing that specialise in increasing the ore feed grade to the mill as well as removing acid consuming gangue.

#### **Preliminary Beneficiation testwork**

Work has begun on preliminary beneficiation testwork based on historic composite ore samples recovered from storage at Australia's Nuclear Science and Technology Organisation, (ANSTO) which was excess to previous column leach tests conducted in 2014.

90kg of composite ore material from Gorgon South, Kraken and Serule West was supplied to mineral processing leaders Nagrom in Perth for sample preparation before being sent to magnetic separation company Steinert for sorting/beneficiation testwork utilising radiometric, XRT, and hyperspectral sensors as well as beneficiation techniques by gravity separation using spiral and dense media separation.

Steinert have been highly successful upgrading uranium ore with sorting programs for other clients in recent years<sup>2</sup>, using radiometric information to pre-classify the ore into product and waste for their program development.

<sup>2</sup> Refer Lotus Resources (ASX:LOT) ASX Release 5 July 2021 *Ore sorting testwork exceeds expectations*

Once they have a “pre-classified” ore and waste fraction, they process these fractions through a sorter with multiple sensors and record all the information from the sensors available on this sorter (colour, laser, induction and XRT). Subsequently they use proprietary software to detect variations in sensor data between the ore and waste fractions either in: density, colour or any of the other sensors in combination.

There are over 200 parameters recorded and they use multiple sensor combinations to find the best potential sorting algorithm to sort the specific ore.

These results will be used to optimise design of the sorting/beneficiation testwork for the PQ core samples.

### **Mineralogy**

Acid consumption is a major operating cost in the proposed process route set out in Letlhakane’s 2016 Feasibility Study. Metallurgical consultants MinAssist found that the ANSTO samples from previous Acid Soluble Uranium (ASU) properties test work were ideal for mineralogical classification by Quantitative XRD analysis to provide the following insights:

- Identify the acid consuming minerals in ASU head samples;
- Determine the mineral dissolution rate of each acid consuming mineral by analysis of head and residue samples, to provide estimates of acid consumption by mineral (this extends on total acid consumption value from ASU test); and
- Infer mineralogy and acid consumption for the entire body using machine learning by linking geochemistry, lithologies, and location to mineralogy characterisation.

This information can then be used to better inform the geological block model with acid consumption parameters and in generating orebody geometallurgical domains, which can be used to optimise the resource to minimise acid consumption and drive down costs. 48 samples were sent to Bureau Veritas (ADE).

### **Mineral Classifier calibration for Hyperspectral Scanning.**

A global leader in material sorting technology, PlotLogic uses a digital assay system to characterise ore using hyperspectral scanning so that more informed decisions can be made regarding the future beneficiation processing, allowing design of the optimum sized plant and processing flow.

In order to assist calibrating the PlotLogic hyperspectral scanner and machine learning aspect, A-Cap despatched three Letlhakane ore composites (crushed to -19mm) to PlotLogic’s office in Adelaide: Serule West Primary (SWP), Gorgon South-Kraken Primary blend (GSP-KRP), and Mixed Oxides (MO).

The composites had accompanying chemistry and mineralogy including: QEMSCAN analysis, elemental composition, particle size distribution, XRF and DNA analysis, and the carbon and sulphur speciation was determined by LECO analysis. Results from these three studies are expected late in Q1 2023.

DEPOSIT	HOLE ID	EAST	NORTH	RL	DEPTH (m)
Kraken	MET01	530,030	7,582,930	930	50
Kraken	MET02	529,821	7,582,721	929	50

Kraken	MET03	530,241	7,582,731	928	50
Kraken	MET04	530,439	7,582,970	930	50
Kraken	MET05	530,640	7,582,822	928	50
Kraken	MET06	530,545	7,582,499	927	50
Kraken	MET07	530,830	7,582,525	927	50
Gorgon	MET08	528,530	7,583,121	932	50
Gorgon	MET09	528,327	7,582,812	934	50
Gorgon	MET10	528,137	7,583,318	933	60
Gorgon	MET11	527,950	7,583,076	934	60
Gorgon	MET12	527,940	7,582,710	935	50
Gorgon	MET13	527,807	7,582,922	935	50
Gorgon	MET14	527,624	7,583,214	934	70
Gorgon	MET15	527,425	7,582,713	936	50
Gorgon	MET16	527,227	7,583,215	936	80
Serule West	MET17	524,798	7,579,792	942	100
Serule West	MET18	525,197	7,579,590	941	100
Serule West	MET19	526,796	7,578,196	948	60
Serule West	MET20	527,116	7,577,874	948	80
Serule West	MET21	527,186	7,578,099	947	80
Serule West	MET22	527,394	7,577,846	947	80
Serule West	MET23	525,890	7,576,556	957	80
Serule West	MET24	527,791	7,575,899	956	50
<b>Total</b>					<b>1,500</b>

*\*geographic datum UTM WGS84 - Zone 35 South*

**Table 1.** Proposed (PQ) diamond core drill holes.

**A-Cap Energy's Board has authorised the release of this announcement to the market.**

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### About A-Cap Energy

A-Cap Energy is an Australian resources company focused on the development of critical minerals serving the world's path to carbon net zero. Amid renewed global focus on nuclear energy, the company's flagship Letlhakane Uranium Project in Botswana hosts one of the world's top 10 undeveloped uranium resources – 365.7 million pounds of contained  $U_3O_8$  (100ppm  $U_3O_8$  cut-off).

A-Cap's Wilconi Project, which represents the company's first nickel-cobalt laterite project interest, is being advanced in response to the significant growth expectation in the supply of battery materials to the OEM automotive and battery industries. The company aims to establish key strategic and commercial relationships to take advantage of material processing and refinery technologies according to the highest Environmental, Social and Governance (ESG) standards.

### JORC Resources

	Total Indicated			Total Inferred			Global Total		
	Mt	$U_3O_8$ ppm	$U_3O_8$ Mlbs	Mt	$U_3O_8$ ppm	$U_3O_8$ Mlbs	Mt	$U_3O_8$ ppm	$U_3O_8$ (Mlbs)
100	197.1	197	85.5	625	203	280.1	822.1	202	365.7
200	59.2	323	42.2	209.7	321	148.2	268.9	321	190.4
300	22.2	463	22.7	81.6	446	80.3	103.8	450	102.9

