

25 January 2023

# Okapi Enters Uranium Enrichment Sector with Strategic Cornerstone Investment in Ubaryon

#### Highlights

- Okapi to become cornerstone shareholder in Ubaryon, a private Australian company which owns 100% of the Ubaryon Enrichment Technology subject to satisfaction of the various Conditions Precedent
- Ubaryon has research and development facilities at Australia's Nuclear Science and Technology Organisation (ANSTO) site located in Sydney, Australia
- Ubaryon's next generation enrichment technology utilises a novel process that does not require significant temperature or pressure and significantly reduces technical risk and cost
- Ubaryon Enrichment Technology has significant potential to transform the uranium enrichment industry which is fundamental to the nuclear fuel cycle
- Ubaryon Enrichment Technology has potential safety, environmental and economic advantages over existing enrichment processes
- Okapi to emerge as the largest single shareholder of Ubaryon with an initial shareholding of 19.9% of Ubaryon's issued capital
- Okapi's Managing Director, Andrew Ferrier, to join Ubaryon's Board to assist in development and commercialisation strategy
- Upcoming catalysts for Ubaryon include:
  - Regulatory approvals to permit negotiations with major multinationals
  - $\circ~$  Research and development to validate and extend enrichment performance
  - Construction and operation of a bench scale process at the Ubaryon laboratories

**Okapi Resources Limited** (ASX: OKR, OTCQB: OKPRF) ("**Okapi**") is pleased to announce that it has entered into a binding agreement to become a cornerstone shareholder in Ubaryon Pty Ltd ("**Ubaryon**"). Ubaryon is a private Australian company which is developing and commercialising a novel uranium enrichment technology ("**Ubaryon Enrichment Technology**"). Okapi sees tremendous value in the Ubaryon Enrichment Technology's potential to transform the global Uranium Enrichment Industry.



Okapi will acquire its position through a private placement in Ubaryon. The total consideration will be A\$3.1 million for an initial 19.9% interest in Ubaryon. Subject to a successful completion of a share buyback by Ubaryon from its existing shareholders, Okapi's shareholding in Ubaryon could increase to 21.9%. Okapi has the right and intends to maintain its ownership interest in Ubaryon moving forward. Upon completion of the transaction, Okapi also has the right to nominate a director to Ubaryon's Board. The transaction is expected to close by the end of March 2023. Completion of the transaction remains subject to Okapi completing its due diligence. As at the date of this announcement, Okapi has completed the majority of its technical, legal and financial due diligence on Ubaryon and the Ubaryon Enrichment Technology. The due diligence undertaken to date has included extensive meetings with the key members of the board and management team of Ubaryon over a period of close to 12 months, review of Ubaryon's key commercial agreements and review of unclassified technical information. Representatives of Okapi have also visited Ubaryon's new laboratory in Lucas Heights in Sydney.

#### Okapi's Managing Director, Mr Andrew Ferrier said:

"We are very excited to become a strategic cornerstone shareholder in Ubaryon at a time that Ubaryon looks to accelerate the development of its world-leading next generation uranium enrichment technology.

Our strategic investment in Ubaryon is synergistic with Okapi's portfolio of North American uranium assets and we are now uniquely positioned to provide shareholders significant exposure to multiple components of the nuclear fuel cycle including uranium exploration, uranium mining and now uranium enrichment. The US currently imports 95% of its uranium yellowcake requirements and 70% of its SWU (enriched uranium) requirements at a time when a significant geopolitical shift is underway within the nuclear fuel industry as international utilities seek to diversify away from Russia which is currently the largest global producer of enriched uranium.<sup>1</sup>

We look forward to working closely alongside Ubaryon's Managing Director, Adam Blunn, and Ubaryon's Board and technical team to execute on the development strategy over the coming period."

#### Ubaryon's Managing Director, Mr Adam Blunn said:

"We are excited to partner with Okapi in moving forward with our technology. We have been approached by numerous companies over the past 12 to 18 months but we believe that this partnership with Okapi represents an outstanding path to add value to our development due to their likeminded approach and philosophy about the best way to progress the opportunity and achieve an excellent return for both Ubaryon and Okapi shareholders. I look forward to working with Andrew and the entire Okapi team."

<sup>&</sup>lt;sup>1</sup> Source: Uranium Marketing Annual Report (eia.gov) <u>https://www.eia.gov/uranium/marketing/summarytable1a.php</u> and <u>https://www.eia.gov/uranium/marketing/summarytable2.php</u>.



#### Transaction Rationale

The proposed investment means Okapi shareholders are uniquely placed in having significant exposure to the key components in both mining and enrichment of the nuclear fuel cycle.

- Enrichment is Crucial
  - Global Enrichment is a US\$6 billion<sup>2</sup> market and crucial to the nuclear fuel cycle with and only a few facilities operating worldwide
  - Potential future production of enriched uranium for use in conventional nuclear reactors and small modular reactors (SMRs) utilising the Ubaryon Enrichment Technology provides Okapi with exposure to potential future fuel production opportunities

#### • Energy Security Concerns

- Enrichment is currently dominated by Rosatom (controlled by Russian state) and there is escalating political pressure for utilities to move away from material enriched in Russia
- Ubaryon is well positioned as significant investment will be required in the enrichment space as countries are incentivising excluding Russian sources of enriched uranium

#### • Transformative Enrichment Technology

- o Enrichment industry is currently reliant on decades old and expensive centrifuge process
- Ubaryon Enrichment Technology has the potential to transform the industry as a low-cost alternative to existing enrichment processes which eliminates the need for the conversion step
- Nuclear Energy
  - Fundamentals of nuclear industry are strong and nuclear remains a clean reliable source of baseload power
  - Okapi's position in Ubaryon provides shareholders with exposure to the key components of the nuclear cycle as more and more countries adopt nuclear power

## Introducing Ubaryon's Next Generation Uranium Enrichment Technology

The Ubaryon Enrichment Technology is a novel uranium enrichment technology based on the chemical separation of naturally occurring isotopes. The process exploits novel and existing chemical separation mechanisms using cost effective components. The process has potential safety, environmental, and economic benefits and advantages over other enrichment processes.

Ubaryon's Enrichment Technology is regulated by the Australian Safeguards and Non-Proliferation Office (ASNO) and accordingly subject to appropriate control and security. Ubaryon has recently relocated its laboratory to Lucas Heights in Sydney to accelerate development of the technology.

Ubaryon's initial focus is the validation of the isotope separation mechanism and extension of its enrichment factor. Concurrently, Ubaryon has demonstrated proof of concept for a significant improvement of the subsequent recovery stages; this is necessary to achieve a scalable process and critical to the future use of the technology to enable higher level enrichment for commercial power generation.

<sup>&</sup>lt;sup>2</sup> Source: Canaccord Genuity (Australian Equity Research Report) dated 20 October 2022 – Silex Systems Limited



#### **Ubaryon's History**



#### **Overview of Ubaryon's Enrichment Technology**

After identifying a process anomaly during environmental testing in 2015, Ubaryon was established to investigate, develop and commercialise a novel process for uranium enrichment. Ubaryon owns 100% of the Ubaryon Enrichment Technology. Ubaryon lodged a patent application over its Ubaryon Enrichment Technology in 2018 and ASNO classified the intellectual property in September 2018. ASNO and Defence Export controls ("**DEC**") now regulate all technical disclosure.

The process has potential safety, environmental, economic benefits and advantages over other existing enrichment processes. A significant feature of the Ubaryon Enrichment Technology is that it eliminates the need for conversion from yellowcake to UF6 and the need for deconversion from UF6 to uranium oxide. Removing conversion and deconversion simplifies the cycle and allows for additional flexibility in the supply chain.

Ubaryon has a permit from ASNO to possess nuclear associated items and possess nuclear material under Section 13 of the Safeguards Act. The Ubaryon Enrichment Technology has been tested and validated over a significant number of experimental runs since inception. Uranium feedstock and product have been tested and a statistically significant enrichment factor has been observed from the process.

The magnitude of the observed enrichment factor is between 10 and 30 times higher than that of previous chemical enrichment technologies developed in France and Japan.

#### **Overview of Enrichment Technologies**





Silex Systems Limited (ASX: SLX) is an ASX listed research and development company which has a 51% interest in the Silex Laser Enrichment Technology developed at the company's technology facility in Sydney, Australia. SILEX stands for Separation of Isotopes by Laser Excitation. Silex's Global Laser Enrichment project represents the 3<sup>rd</sup> Generation Technology and is under JV ownership with one of the world's largest uranium producer, Cameco Corporation (NYSE: CCJ, TSX: CCO), a \$11 billion dollar Company who owns 49% of the technology. Silex System's current market capitalisation is at \$950 million and represents the 3<sup>rd</sup> Generation Technology<sup>3</sup> that is yet to be commercialised.

#### **Recent Developments and Next Steps**

Ubaryon has confirmed the scope under its permit to allow demonstration of a bench scale process. An Enrichment plant currently cannot be built in Australia under current regulation and no government arrangements have been sought to export the technology. Upcoming milestones for Ubaryon include:

- Regulatory approvals to permit negotiations with major multinationals
- Further validation and extend the enrichment performance
- Construction and operation of continuous operation at bench scale

#### **Ubaryon Board and Management**

#### Martin Mankowski (Chairman)

Mr Martin Mankowski is a qualified Engineer (B.Eng. Hons) and has a Masters Degree in Economics and Accounting. He has extensive international experience in finance, large scale infrastructure, economics and commercial management, including business development, business turnaround, and National Policy implementation in several countries. He has held senior executive roles in development banking in the Middle East and international positions in both Engineering and Corporate Advisory.

#### Adam Blunn (Managing Director)

Mr Adam Blunn has a degree in Chemistry and a Masters Degree in Technology Management. Adam has extensive industrial R&D Commercialisation and production experience, including large scale manufacturing, personnel and budget management, production and maintenance management, in various industries including sugar production, hydrometallurgy, and water and wastewater treatment. Adam has worked as an industrial chemist for 25 years and has experience in agriculture, environmental, mining, and production chemistry. Technology development and commercialisation experience has included corporate development, IP strategy and implementation, capital planning and R&D budget management and funding.

## Andrew Ferrier (Proposed Non-Executive Director)<sup>4</sup>

Mr Andrew Ferrier holds a Bachelor of Chemical Engineering (First Class Honours) and Bachelor of Commerce from the University of Sydney. Andrew also holds a Masters of Applied Finance from Macquarie University and is a CFA charterholder. He has more than 18 years' experience in global mining and funds management. Andrew has previously held senior roles for Pacific Road Capital, a large mining-focused private equity investment firm where he worked for 12 years across the USA, Canada and Australia. He has significant knowledge and experience in the Uranium space having been heavily involved in the development, permitting

<sup>&</sup>lt;sup>3</sup> Source: ASX market capitalisation as at 23 January 2023; <u>https://www.silex.com.au/silex-technology/silex-uranium-enrichment-technology/</u>

<sup>&</sup>lt;sup>4</sup> Subject to completion of the investment and associated customary approvals.



and sale of the Reno Creek ISR Uranium project in Wyoming, USA, the largest permitted preconstruction ISR project in the USA.

#### Dr Tracey Hanley (Non-Executive Director)

Dr Tracey Hanley has extensive expertise in materials science and engineering, with international recognition of more than 20 years' experience, specialising in nuclear science and engineering including chemical separation processes and uranium chemistry. Dr Hanley also had extensive commercial industrial engagement with both Australian and International companies. Dr Hanley's regulatory expertise, technical value and capacity to directly work with Ubaryon's Enrichment Technology will add value and minimise technical risks of commercial development.

#### Mr Julian Tapp (Incoming Non-Executive Director)

Mr Julian Tapp is a highly experienced and respected economist and analyst and has worked in mining and manufacturing industries enabling and directing major strategic initiatives. Julian has experience as a listed company Director, CEO, and has chaired the World Nuclear Association's Uranium Supply Group. Julian has worked at senior levels, enabled and participated in major business development for British Aerospace, Fortescue Metals, Vimy Resources and Mineral Resources Ltd among others. Julian's extensive experience in business strategy, analysis and regulatory approval execution across a wide range of production industries will provide significant value in the evolution and execution of Ubaryon's strategic path ahead.

#### Uranium Enrichment – A crucial part of the nuclear fuel cycle

Naturally existing uranium consists of two primary isotopes, 0.7% U-235 and 99.3% U-238. Nuclear reactors require higher concentrations of U-235; 3-5% for standard nuclear reactors, up to 19.5% enriched uranium for emerging advanced small modular reactors (SMRs). The enrichment process involves progressively increasing the concentration of U-235 by a small percentage (called the "enrichment factor") over multiple stages ("cascade") until the desired level of enrichment of U-235 is achieved.



Figure 1: Nuclear Fuel Cycle

This US\$6 billion market<sup>2</sup> has only ever used two different processes at a commercial scale - the legacy gaseous diffusion technology and the current centrifuge process. In the centrifuge process,  $UF_6$  gas is placed in a centrifuge cylinder and rotated at high speeds forcing the heavier U-238 towards the outer casing, while the lighter U-235 molecules collect closer to centre. The enriched stream is withdrawn while the depleted stream is recycled. This process is repeated until the targeted enrichment grade is achieved.



#### **Existing Enrichment Supply**

Uranium enrichment is heavily regulated, strategically sensitive and capital intensive; hence enrichment operations are centred on only a few facilities worldwide which are controlled by government owned or controlled entities. The uranium enrichment industry has four significant producers.

- **Rosatom** The Russian state corporation has the world's largest production capacity for enriched uranium and supplies the full range of nuclear cycle products.
- **Urenco** Urenco has been an international supplier of enrichment services since the early 1970's and currently has enrichment operations in the UK, Germany, Netherlands and the USA.
- **Orano** (formerly Areva) is owned by the French state and operates in all stages of the uranium fuel cycle.
- Chinese National Nuclear Corporation (CNNC) is a Chinese state-owned entity, which has approximately 8.7 million SWU/year of capacity.

#### A New Paradigm for Uranium Enrichment

**Uranium enrichment capability** 

The invasion of Ukraine by Russia has created a new paradigm in the nuclear energy sector, and especially in the conversion and enrichment space where Russia controls 38% and 43% respectively. As the war continues, utilities and governments are beginning to revaluate their exposure to Russian nuclear supply. This is especially the case in the United Sates which is reliant on Russia for 18% of its conversion and 20% of its enrichment services.



There is clearly political pressure for utilities to move away from Russia, with enrichers outside of Russia seeing significantly increased demand which is highlighted by the significant jump in SWU pricing since March 2022 as illustrated in the price chart below.



## Dramatic price increase for enriched uranium

Response to Russia/Ukraine conflict and supply uncertainties



SWU stands for Separative Work Unit (SWU) and is a measure of effort required to separate U235 and U238. The SWU price is effective the price for enrichment services to be completed.

However, as shown in the table below, the enrichment capacity excluding Russia is currently insufficient to meet the demands of enrichment outside of Russia and its allies. Hence significant investment is required in the enrichment sector moving forward and promising emerging technologies are likely to play a crucial role in the next round of enrichment development to mitigate the risk of relying upon Russian supply.

#### Enrichment demand and supply 2022 Global Market

Source: WNA, Credit Suisse

Demand by Region	k SWU	Enrichment capacity	k SWU
Latin America	477	Secondary supply	1,400
Middle East & Central Asia	933	Rosatom	27,000
Eastern Europe	1,551	Urenco	18,100
Russia, Belarus, Armenia	5,326	Orano	7,500
West & Central Europe	12,681	CNNC	8,700
North America	13,935	Total capacity	62,700
East Asia	14,567		
Africa	231	Total capacity ex <u>Rosatom</u> (Supply)	36,700
South Asia	2,469	World ex Russia, Belarus, Armenia (Demand)	46,844
South-East Asia & Pacific	0	Enrichment deficit ex Russia & Allies	-11,144
World total demand	52,170	Percentage of ex-Russia enrichment	31%
World demand – ex Russia, Belarus, Armenia	46,844		

In August 2022, the United States Senate passed the Inflation Reduction Act (IRA) which strongly recognised the importance of nuclear power generation to America's energy future. Despite the growth in renewable energy, nuclear power in the United States still remains the largest source of carbon free electricity, representing 50% of all clean energy and 20% of total electric generation.



The IRA would support the US nuclear industry in several ways, but importantly it would seek to address US dependency on Russia enrichment by providing US\$700 million in funding to incentivise domestic sources of high-assay low-enriched uranium (HALEU) which will be used to fuel advanced molecular reactors moving forward. Currently, there are no commercial enrichment facilities to produce HALEU outside of Russia. The IRA shows the clear intent of the United States government to support the massive future investment that is required in the enrichment space to not only supply the needs of existing nuclear reactors but also the requirements of the growth in small molecular reactors.

#### **Summary of Investment Terms**

Okapi Resources Limited and Ubaryon Pty Ltd have entered into a binding term sheet pursuant to which terms have been agreed for Okapi or its wholly owned subsidiary ("**Nominee**") to become a cornerstone shareholder in Ubaryon through the issue of new fully paid ordinary shares in the capital of Ubaryon ("**Shares**") to Okapi or its Nominee ("**Investment**").

Okapi will invest A\$3.1 million at a price of A\$0.1787 per Share for 19.9% interest in Ubaryon. The proceeds will be applied towards further development of the Ubaryon Enrichment Technology and A\$1.3 million will be applied for a share buyback from existing Ubaryon shareholders. Subject to the successful completion of the share buyback, Okapi's shareholding in Ubaryon could increase to 21.9%. The Company has approximately A\$2.2 million in cash at the end of the December quarter and will be required to raise approximately A\$1.75 million to complete the Investment. The Company is considering a number of funding options, which may include an entitlement offer (for which the Company would seek out interest in underwriting) and/or placement using its current capacity under Listing Rule 7.1 and/or 7.1A, in order to fund the consideration for the Investment. The Company will announce the terms of the capital raising once finalised.

#### **Investor Rights**

Upon completion of the Investment, Okapi will have the right to nominate a director to the Ubaryon's Board. Mr Andrew Ferrier has been nominated and accepted as the nominee Board member of Ubaryon.

## **Conditions Precedent**

Completion of the Investment will occur after the satisfaction (or waiver) of the Conditions Precedent set out below:

- Completion by Okapi of technical, legal and financial due diligence by Okapi on the Ubaryon Enrichment Technology (outside of classified information) to the absolute discretion of Okapi.
- Negotiation and execution of definitive documentation by Okapi and Ubaryon for the Investment, completed to the satisfaction of Okapi (acting reasonably).
- Okapi completing a capital raising to fund the investment in Ubaryon.
- Ubaryon complying with the procedure for the issue of Shares set out in its shareholders deed ("Shareholders Deed") or all Ubaryon shareholders agreeing to waive their rights under the Shareholders Deed.
- Okapi executing a Deed of Accession as required by the Shareholders Deed.

The Conditions Precedent above must be satisfied or waived by 31 March 2023 (or such later date agreed in writing between Okapi and Ubaryon).



#### Completion

Completion of the Investment will occur on that date which is 2 business days after the satisfaction (or waiver) of the Conditions Precedent or such other date agreed in writing between Okapi and Ubaryon ("**Completion**").

In addition to the Investment set out above, subject to completion of the Investment and entry into a voluntary escrow deed in relation to the Fee Shares, the Company has agreed to issue Element Resources Fund Pty Ltd (or its nominee) A\$100,000 worth of fully paid ordinary shares in Okapi ("**Fee Shares**") in consideration for finder and introduction services provided to Okapi in relation to the Investment in Ubaryon. The value of the Fee Shares shall be calculated by use of the 20-day volume weighted average price of Shares up to the day prior to Completion. The Fee Shares will be issued to Element Resources Fund Pty Ltd (or its nominee) who are not related parties of the Company and subject to six months voluntary escrow from Completion.

This announcement has been authorised for release by the Board of Okapi Resources Limited.

#### Further information:

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#### **Caution Regarding Forward Looking Statements**

This announcement contains forward looking statements which involve a number of risks and uncertainties. These forward-looking statements are expressed in good faith and believed to have a reasonable basis. These statements reflect current expectations, intentions or strategies regarding the future and assumptions based on currently available information. Should one or more risks or uncertainties materialise, or should underlying assumptions prove incorrect, actual results may vary from the expectations, intentions and strategies described in this announcement. The forward-looking statements are made as at the date of this announcement and the Company disclaims any intent or obligation to update publicly such forward looking statements, whether as the result of new information, future events or results or otherwise.



#### About Okapi Resources

Okapi Resources Limited is leading North America to a carbon-free future through by developing a portfolio of advanced, high grade uranium assets in prolific uranium districts in the United States of America and Canada.

#### Asset Portfolio:

- Tallahassee Uranium Project contains a JORC 2012 Mineral Resource estimate of 49.8 million pounds of U<sub>3</sub>O<sub>8</sub> at a grade of 540ppm U<sub>3</sub>O<sub>8</sub><sup>5</sup> with significant exploration upside. Located in Colorado's Tallahassee Creek Uranium District, host to more than 100 million pounds of U<sub>3</sub>O<sub>8</sub>.
- Rattler Uranium Project located within La Sal Uranium District, Utah, 85km north of White Mesa Uranium/Vanadium mill, the only operating conventional uranium mill in the USA.
- Athabasca Basin Projects A portfolio of six potentially high-grade exploration assets in the Athabasca Basin, Canada, home to the world's largest and highest-grade uranium mines.
- Maybell Uranium Project located in a recognised uranium district in Colorado with historical production of 5.3 million pounds of U<sub>3</sub>O<sub>8</sub> (average grade 1,300ppm)<sup>6</sup>.



<sup>5</sup>Competent Persons Statement - Information on the Mineral Resources presented, together with JORC Table 1 information, is contained in the ASX announcement dated 7 April 2022 and titled "Okapi to acquire Hansen Deposit – Resource increased by 81%". Measured 2.96MLbs of 550 ppm U<sub>3</sub>O<sub>8</sub>, Indicated 19.095MLbs of 580 ppm U<sub>3</sub>O<sub>8</sub>, Inferred 27.78MLbs of 510 ppm U<sub>3</sub>O<sub>8</sub> calculated applying a cut-off grade of 250ppm U<sub>3</sub>O<sub>8</sub>. Numbers may not sum due to rounding. Grade rounded to nearest 10ppm.

The Company confirms that it is not aware of any new information or data that materially affects the information in the relevant market announcements, and that the form and context in which the Competent Persons findings are presented have not been materially modified from the original announcements. Where the Company refers to Mineral Resources in this announcement (referencing previous releases made to the ASX), it confirms that it is not aware of any new information or data that materially affects the information included in that announcement and all material assumptions and technical parameters underpinning the Mineral Resource estimate with that announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Persons findings are presented have not materially changed from the original announcement.

<sup>6</sup>Historical production data has been sourced of an article in Rocky Mountain Association of Geologists (1986) titled "Geology and Production History of the Uranium Deposits in the Maybell, Colorado Area" from W. L. Cheneoweth.