October 17, 2024

ASP Isotopes Inc. Enriches Ytterbium-176 During Commissioning Phase of First Quantum Enrichment Facility and Expects to Offer Highly Enriched Ytterbium-176 for Commercial Sale in 2025

- The Company has accelerated the commissioning phase of its first Quantum Enrichment plant and produced the first semi-finished material of enriched Ytterbium-176.

- Commissioning phase was initially anticipated to take 3-6 months, but the Company produced enriched Ytterbium-176 during the first 6 weeks.

- The Company expects to be able to achieve a 99.75% enrichment for Ytterbium-176 and offer highly enriched Ytterbium-176 for commercial sale during 2025, with samples available during 1Q 2025. Contact details for prospective customers are provided below.

- The Company expects to proceed with the plans to construct Nickel-64 and Lithium-6/7 Quantum Enrichment plants with targeted production during 2025.

- The Company expects to continue its discussions with government authorities and regulators for the authorization to construct HALEU uranium enrichment facilities using Quantum Enrichment.

WASHINGTON, Oct. 17, 2024 (GLOBE NEWSWIRE) -- ASP Isotopes Inc. NASDAQ: ASPI ("ASP Isotopes" or the "Company"), an advanced materials company dedicated to the development of technology and processes for the production of isotopes for use in multiple industries, today announced the successful enrichment of Ytterbium-176 using Quantum Enrichment, a novel laser isotope enrichment technique developed by scientists at ASP Isotopes working with world class scientists at universities in South Africa.

Ytterbium-176 Enrichment

Construction of the Company's Ytterbium-176 enrichment facility was completed in late August 2024, approximately 9 months ahead of schedule. This is the Company's third enrichment facility in South Africa and its first isotope enrichment plant to utilize Quantum Enrichment, a novel laser-based method of enrichment. The Company believes that this proprietary technology is not only more efficient and scalable than other enrichment technologies, but also has considerable advantages with respect to capital efficiency and industrial pollution. Additionally, ASP Isotopes believes that because of this milestone achievement it is likely that other important isotopes can be produced using the Quantum

Enrichment technology with the same benefits. The Company is focused on its goal to become a leading supplier of isotopes that are essential for developments in medicine, quantum computing and green energy production.

"*The success of this project is testament to the strong working relationship between our in-house scientists and technicians and the world class scientists in the fields of nuclear physics and laser technology that work in our universities in South Africa*", said Hendrik Strydom, ASP Isotopes Inc.'s Chief Scientific Officer.

Customers that are interested in samples of Yb-176 or other isotopes should contact ASPI at productsupply@aspisotopes.com.

The commissioning phase of the Ytterbium-176 enrichment facility was initially anticipated to take 3-6 months. However, during the first 6 weeks, the Company has already produced enriched Ytterbium-176. The level of enrichment achieved was in line with that predicted by mathematical models and is the first intermediate stage required to achieve a 99.75% enrichment, the desired level of enrichment in the finished product.

Based on these results, the Company believes that this plant will be capable of producing approximately 1 kg of highly enriched Ytterbium-176 per annum. The Company expects to be able to offer Ytterbium-176, enriched to 99.75% at competitive prices and terms compared to other suppliers, with greater reliability and a significantly improved environmental footprint.

Ytterbium-176 (^{176}Yb) is a key stable isotope used in the production of Lutetium-177 (^{177}Lu). Lutetium-177 is an emerging beta emitting radiopharmaceutical used in oncology drugs such as Novartis' Pluvicto. There are currently two FDA approved drugs and more than 66 ongoing clinical trials for drugs that require Lutetium-177.

Consensus forecasts for Novartis' Pluvicto exceed $4 billion and the beta emitting radiopharmaceutical market is expected to exceed $15 billion per annum in the next decade.(1) The supply chain for this radioisotope has been particularly challenged with recent industry reports highlighting over two months treatment delay due to lack of drug availability.(2) The Company believes that it will be the only supplier of commercial quantities of Ytterbium-176 and other similar isotopes in the Western world.

"*Currently, there exist significant supply-side challenges for many essential radioisotopes used in various oncology treatments. We have received a considerable amount of interest from customers in North America, Europe and Asia for Ytterbium-176 and we look forward to easing supply chains and improving the quality of life for thousands of patients every year*", said Paul Mann, ASP Isotopes Inc.'s Executive Chairman and CEO.

Quantum Enrichment – A Novel Enrichment Technique Potentially Capable of Efficiently Producing Advanced Nuclear Fuels

ASPI believe its Quantum Enrichment process will be able to produce HALEU (High Assay Low Enriched Uranium) at an attractive price, allowing new nuclear energy to become available at a "green discount" to carbon-intensive electricity production processes. This "green energy cost advantage" is expected to help accelerate the global adoption of new nuclear energy, with a corresponding benefit to climate goals.

HALEU will be required for use in the next generation of advanced nuclear reactors, such as SMRs (small modular reactors), that are now under development for commercial and government uses. Currently, there are no Western producers of HALEU in commercial quantities, and many SMR companies worldwide face substantial delays until this fuel supply issue is resolved. The Nuclear Energy Institute estimates that there may be a HALEU supply shortage of approximately 3,000 metric tons by 2035[(3)]. However, based on discussions with and the interest received from potential customers, the Company believes this figure may be significantly larger.

The advanced nuclear fuels required during the next 50 years are expected to differ significantly from those used in the last 50 years. Without these advanced nuclear fuels and the successful development of SMRs, the 2050 climate goals may not be achieved, which could have devastating consequences for the world. Historically, low-carbon-emitting, environmentally friendly fuels for electricity production were available only at a substantial "green premium" vs. carbon-based fuels used for electricity generation.

The Company is in discussions with potential customers that anticipate requiring High Assay Low Enriched Uranium (HALEU), valued at over $37 billion[(4)] at recent market prices. The Company previously announced that it has entered into MOUs (Memorandum of Understanding) with two US-based SMR companies for HALEU supply that contemplate the SMR companies making capital investments into the development of HALEU facilities. The Company is in discussions with governmental authorities and regulators in three geographies regarding the potential construction of a quantum enrichment facility for uranium enrichment and recently recruited Lt. Col. William (Bill) Eden, MBE to lead the Company's nuclear strategy in the United Kingdom.

Additional Planned Quantum Enrichment Plants – Nickel-64 and Lithium-6/7

Based on the results of the commissioning phase of the Ytterbium-176 plant, the Company is now accelerating plans to construct Nickel-64 and Lithium-6/7 plants in South Africa. There is an urgent need for all three isotopes from Western-based producers.

Nickel-64 is currently used to produce Copper-64, in a cyclotron, and based on discussions with potential customers, has significant supply-side challenges. Copper-64 is a positron and beta emitting isotope of copper, with applications for molecular radiotherapy and positron emission tomography.

Lithium-7 is currently used as an alkalizing agent for the coolant in Pressure Water Reactors (PWRs) and it is predicted that Lithium-7 will be used as part of the molten lithium fluoride in molten-salt reactors which are expected to become used in the nuclear energy industry next decade. Western supplies of Lithium-7 are currently provided by Russia.

It is widely anticipated that Lithium-6 will be required to enable nuclear fusion power plants, which are currently in development. It is widely anticipated that nuclear fusion will be one of the cleanest forms of energy, with potential for low carbon baseload energy with no long-lived radionuclide waste. There is currently no producer of Lithium-6 in commercial quantities, yet most power plant designs need tonnage of Lithium-6 for operations. With 93% of private fusion companies aiming to deliver a fusion prototype device during the 2030s, according to the Fusion Industry Association, this represents a key emerging supply chain for fusion nuclear power.

(1) Lutetium-177 (Lu-177) Market Size, Scope And Forecast Report (marketresearchintellect.com)

(2) Ravi et al, Clinical Implementation of 177Lu-PSMA-617 in the United States: Lessons Learned and Ongoing Challenges; J Nuc Med March 2023, 64 (3) 349-350

(3) UK releases roadmap to quadruple nuclear energy capacity : Nuclear Policies - World Nuclear News (world-nuclear-news.org)

(4) NEI-Letter-for-Secretary-Granholm_HALEU-2021.pdf

About ASP Isotopes Inc.

ASP Isotopes Inc. is a development stage advanced materials company dedicated to the development of technology and processes to produce isotopes for use in multiple industries. The Company employs proprietary technology, the Aerodynamic Separation Process ("ASP technology"). The Company's initial focus is on producing and commercializing highly enriched isotopes for the healthcare and technology industries. The Company also plans to enrich isotopes for the nuclear energy sector using Quantum Enrichment technology that the Company is developing. The Company has isotope enrichment facilities in Pretoria, South Africa, dedicated to the enrichment of isotopes of elements with a low atomic mass (light isotopes).

There is a growing demand for isotopes such as Silicon-28, which will enable quantum computing, and Molybdenum-100, Molybdenum-98, Zinc-68, Ytterbium-176, and Nickel-64 for new, emerging healthcare applications, as well as Chlorine-37, Lithium-6, Lithium-7 and Uranium-235 for green energy applications. The ASP Technology (Aerodynamic Separation Process) is ideal for enriching low and heavy atomic mass molecules. For more information, please visit www.aspisotopes.com.

Forward Looking Statements

This press release contains "forward-looking statements" within the meaning of the safe harbor provisions of the U.S. Private Securities Litigation Reform Act of 1995, including, without limitation, statements relating to the outcome of the project for the production of enriched Ytterbium-176, the development of new technology for the enrichment of nuclear isotopes, the competition from alternative technologies, the impact of ongoing economic uncertainty and geopolitical tensions and risks on global supply chains, the market demand for enriched uranium, the commencement of supply of isotopes to customers, and the construction of additional enrichment facilities. Forward-looking statements are neither historical facts nor assurances of future performance. Instead, they are based only on our current beliefs, expectations, and assumptions regarding the future of our business, future plans and strategies, projections, anticipated events and trends, the economy, and other future conditions. Forward-looking statements can be identified by words such as "believes," "plans," "anticipates," "expects," "estimates," "projects," "will," "may," "might," and words of a similar nature. Examples of forward-looking statements include, among others but are not limited to, statements we make regarding expected operating results, such as future revenues and prospects from the potential commercialization of isotopes, future performance under contracts, and our strategies for product development, engaging with potential customers, market position, and financial results. Because forward-looking statements relate

to the future, they are subject to inherent uncertainties, risks, and changes in circumstances that are difficult to predict, many of which are outside our control. Our actual results, financial condition, and events may differ materially from those indicated in the forward-looking statements based upon a number of factors. Forward-looking statements are not a guarantee of future performance or developments. You are strongly cautioned that reliance on any forward-looking statements involves known and unknown risks and uncertainties. Therefore, you should not rely on any of these forward-looking statements. There are many important factors that could cause our actual results and financial condition to differ materially from those indicated in the forward-looking statements, including the outcomes of various strategies and projects undertaken by the Company; the potential impact of laws or government regulations or policies in South Africa, the United Kingdom or elsewhere; our reliance on the efforts of third parties; our ability to complete the construction and commissioning of our enrichment plants or to commercialize isotopes using the ASP technology or the Quantum Enrichment Process; our ability to obtain regulatory approvals for the production and distribution of isotopes; the financial terms of any current and future commercial arrangements; our ability to complete certain transactions and realize anticipated benefits from acquisitions; contracts, dependence on our Intellectual Property (IP) rights, certain IP rights of third parties; and the competitive nature of our industry. Any forward-looking statement made by us in this press release is based only on information currently available to us and speaks only as of the date on which it is made. We undertake no obligation to publicly update any forward-looking statement, whether as a result of new information, future developments or otherwise. This press release includes market and industry data and forecasts that we obtained from internal research, publicly available information and industry publications and surveys. Industry publications and surveys generally state that the information contained therein has been obtained from sources believed to be reliable. Unless otherwise noted, statements as to our potential market position relative to other companies are approximated and based on third-party data and internal analysis and estimates as of the date of this press release. We have not independently verified this information, and it could prove inaccurate. Industry and market data could be wrong because of the method by which sources obtained their data and because information cannot always be verified with certainty due to the limits on the availability and reliability of raw data, the voluntary nature of the data-gathering process and other limitations and uncertainties. In addition, we do not know all of the assumptions regarding general economic conditions or growth that were used in preparing the information and forecasts from sources cited herein. No information in this press release should be interpreted as an indication of future success, revenues, results of operation, or stock price. All forward-looking statements herein are qualified by reference to the cautionary statements set forth herein and should not be relied upon.

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