UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K

☒ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the year ended December 31, 2022

OR

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the transition period from to

Commission File Number 001-39069

ASP Isotopes Inc.

(Exact name of registrant as specified in its charter)

Delaware	**87-2618235**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
433 Plaza Real, Suite 275 **Boca Raton, Florida 33432**	**33432**
(Address of principal executive offices)	(Zip code)

(561) 709-3034
(Registrant's telephone number, including area code)

Not Applicable
(Former name, former address and former fiscal year, if changed since last report)

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	**Trading Symbol**	**Name of exchange on which registered:**
Common stock, par value $0.01 per share	ASPI	The Nasdaq Capital Market LLC

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☐No ☒

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes ☐No ☒

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☐ No ☒

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files).Yes ☒ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer	☐	Accelerated filer	☐
Non-accelerated Filer	☒	Smaller reporting company	☒
		Emerging growth company	☒

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes☐ No ☒

The aggregate market value of the voting stock held by non-affiliates of the registrant on March 29, 2023 was approximately $8.1 million.

There were 37,385,684 shares of the registrant's common stock, $0.01 par value, outstanding as of March 29, 2023.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's definitive proxy statement for its 2023 Annual Meeting of Stockholders (the "Proxy Statement"), to be filed within 120 days of the registrant's fiscal year ended December 31, 2022, are incorporated by reference in Part III of this Annual Report on Form 10-K. Except with respect to information specifically incorporated by reference in this Annual Report on Form 10-K, the Proxy Statement is not deemed to be filed as part of this Annual Report on Form 10-K.

ASP Isotopes Inc.
Annual Report on Form 10-K
For the Year Ended December 31, 2022

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SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K contains forward-looking statements within the meaning of the federal securities laws. All statements other than statements of historical fact contained in this Annual Report on Form 10-K, including statements regarding our future results of operations and financial position, business strategy and plans and objectives of management for future operations, are forward-looking statements. These statements involve known and unknown risks, uncertainties and other important factors that may cause our actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by the forward-looking statements.

In some cases, you can identify forward-looking statements by terms such as "may," "should," "would," "expects," "plans," "anticipates," "could," "intends," "target," "projects," "contemplates," "believes," "estimates," "predicts," "potential" or "continue" or the negative of these terms or other similar expressions. The forward-looking statements in this Annual Report on Form 10-K are only predictions. We have based these forward-looking statements largely on our current expectations and projections about future events and financial trends that we believe may affect our business, financial condition and results of operations. These forward-looking statements speak only as of the date of this Annual Report on Form 10-K and are subject to a number of risks, uncertainties and assumptions described in the section titled "Risk Factors" and elsewhere in this Annual Report on Form 10-K. Because forward-looking statements are inherently subject to risks and uncertainties, some of which cannot be predicted or quantified, you should not rely on these forward-looking statements as predictions of future events. The events and circumstances reflected in our forward-looking statements may not be achieved or occur and actual results could differ materially from those projected in the forward-looking statements. Some of the key factors that could cause actual results to differ from our expectations include:

- our ability to complete the construction of, commission and successfully operate isotope enrichment plants in a cost-effective manner
- our ability to meet, and to continue to meet, applicable regulatory requirements for the use of the isotopes we may produce using the ASP technology;
- our ability to comply on an ongoing basis with the numerous regulatory requirements applicable to the ASP technology and our enrichment facilities in South Africa;
- the introduction, market acceptance and success of Mo-100 that we may produce using ASP technology as an alternative and potentially more convenient production route for Tc-99m;
- the success or profitability of our future offtake arrangements with respect to various isotopes that we may produce using ASP technology;
- a failure of demand for various isotopes that we may produce using ASP technology;
- our future capital requirements and sources and uses of cash;
- our ability to obtain funding for our operations and future growth;
- the extensive costs, time and uncertainty associated with new technology development;
- developments and projections relating to our competitors and industry;
- the ability to recognize the anticipated benefits of the acquisition of assets of Molybdos (Pty) Limited in the "business rescue" auction and the ASP technology for the production of Mo-100 and U-235 we licensed from Klydon Proprietary Ltd;
- problems with the performance of the ASP technology in the enrichment of isotopes;
- our dependence on a limited number of third-party suppliers for certain components;
- our inability to adapt to changing technology and diagnostic landscape, such as the emergence of new diagnostic scanners or tracers;
- our expected dependence on a limited number of key customers for Mo-100 that we may produce using ASP technology;
- our inability to protect our intellectual property and the risk of claims that we have infringed on the intellectual property of others;
- our inability to compete effectively;
- risks associated with the current economic environment;
- risks associated with our international operations;
- We are subject to credit counterparty risk.
- geopolitical risk and changes in applicable laws or regulations;
- our inability to adequately protect our technology infrastructure;
- our inability to hire or retain skilled employees and the loss of any of our key personnel;
- operational risk;
- costs and other risks associated with becoming a reporting company and becoming subject to the Sarbanes-Oxley Act;
- our inability to implement and maintain effective internal controls; and
- other factors that are described in "Risk Factors," beginning on page 26.

These statements relate to future events or to our future financial performance and involve known and unknown risks, uncertainties, and other factors that may cause our actual results, performance, or achievements to be materially different from any future results, performance, or achievements expressed or implied by these forward-looking statements. Factors that may cause actual results to differ materially from current expectations include, among other things, those set forth in Part I, Item 1A - "Risk Factors" below and for the reasons described elsewhere in this Annual Report on Form 10-K. Any forward-looking statement in this Annual Report on Form 10-K reflects our current view with respect to future events and is subject to these and other risks, uncertainties, and assumptions relating to our operations, results of operations, industry, and future growth. Given these uncertainties, you should not place undue reliance on these forward-looking statements. Except as required by law, we assume no obligation to update or revise these forward-looking statements for any reason, even if new information becomes available in the future.

This Annual Report on Form 10-K also contains estimates, projections, and other information concerning our industry, our business, and the markets for certain drugs, including data regarding the estimated size of those markets, their projected growth rates, and the incidence of certain medical conditions. Information that is based on estimates, forecasts, projections, or similar methodologies is inherently subject to uncertainties, and actual events or circumstances may differ materially from events and circumstances reflected in this information. Unless otherwise expressly stated, we obtained these industry, business, market, and other data from reports, research surveys, studies, and similar data prepared by third parties, industry, medical and general publications, government data, and similar sources. In some cases, we do not expressly refer to the sources from which these data are derived.

Except where the context otherwise requires, in this Annual Report on Form 10-K, "we," "us," "our," "ASP Isotopes," and the "Company" refer to ASP Isotopes Inc. and, where appropriate, its consolidated subsidiaries.

Trademarks

All trademarks, service marks, and trade names included in this Annual Report on Form 10-K are the property of their respective owners. Solely for convenience, the trademarks and trade names in this report may be referred to without the ® and ™ symbols, but such references should not be construed as any indicator that their respective owners will not assert, to the fullest extent under applicable law, their rights thereto.

PART I

Item 1. Business

Overview

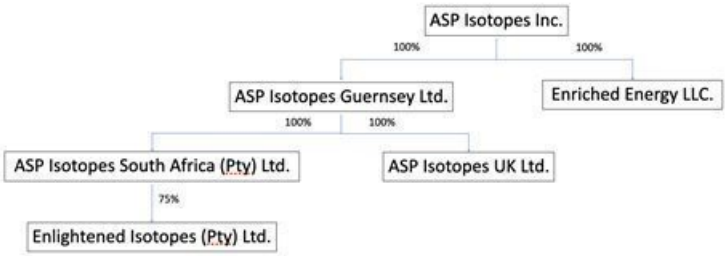
We are a pre-commercial stage advanced materials company dedicated to the development of technology and processes that, if successful, will allow for the enrichment of natural isotopes into higher concentration products, which could be used in several industries. We have an exclusive license to use proprietary technology, the Aerodynamic Separation Process ("ASP technology"), originally developed and licensed to us by Klydon Proprietary Ltd ("Klydon"), for the production, distribution, marketing and sale of all isotopes. Our initial focus is on the production and commercialization of enriched Carbon-14 ("C-14"), Molybdenum-100 ("Mo-100") and Silicon-28 ("Si-28"). Klydon has agreed to provide us a first commercial-scale isotope enrichment plant located in South Africa. We believe the C-14 we may develop using the ASP technology may be used in the development of new pharmaceuticals and agrochemicals. We believe that the Mo-100 we may develop using the ASP technology has significant potential advantages for use in the preparation of nuclear imaging agents by radiopharmacies and others in the medical industry. We believe the Si-28 we may develop using the ASP technology may be used to develop advanced semiconductors and in quantum computing.

We also intend to develop the ASP technology to produce enriched Uranium-235 ("U-235"). We believe that the U-235 we may develop using the ASP technology may be commercialized as a nuclear fuel component for use in the new generation of HALEU-fuelled small modular reactors that are now under development for commercial and government uses. In addition, we are considering future development of the ASP technology for the separation of Zinc-68, Ytterbium-176, Zinc-67, Nickel-64 and Xenon-136 for potential use in the healthcare target end market, and Chlorine -37 and Lithium-6 for potential use in the nuclear energy target end market.

The aerodynamic separation technique has its origins in the South African uranium enrichment program in the 1980s and the ASP technology has been developed during the last 18 years by the scientists at Klydon. In Klydon's testing, the ASP technology has demonstrated efficacy and commercial scalability in the enrichment of oxygen-18 and silicon-28. ASP Isotopes Inc. was incorporated in Delaware in September 2021 to acquire assets and license intellectual property rights related to the production of Mo-100 using the ASP technology. In January 2022 we also licensed intellectual property rights related to the production of U-235 using the ASP technology. In July 2022, we licensed intellectual property rights related to the production of all isotopes using the ASP technology.

We operate principally through subsidiaries: ASP Isotopes Guernsey Limited (the holding company of ASP Isotopes South Africa (Proprietary) Limited and Enlightened Isotopes (Pty) Ltd), which will be focused on the development and commercialization of high value, low volume isotopes for highly specialized end markets (such as C-14, Mo-100 and Si-28).; Enriched Energy LLC, which will be focused on the development and commercialization of uranium for the nuclear energy market; and ASP Isotopes UK Ltd, which is the licensee of the ASP technology under the exclusive license agreement with Klydon.

Our corporate structure and ownership of our subsidiaries is set forth in the chart below:



Recent Events

Completion of First Company Owned Plant

Our wholly owned subsidiary, ASP Isotopes South Africa (Pty) Ltd successfully completed the construction of our first Company owned plant, for light isotopes, during the first quarter of 2023. This facility located in Pretoria, South Africa, will, when fully commissioned, satisfy the production to fulfill our obligations to our prospective C-14 customer. We employ 27 persons at this facility. We expect to conclude the construction of a second larger plant later in 2023.

Klydon Agreements

On November 1, 2021, ASP Isotopes South Africa (Proprietary) Ltd ("ASP South Africa") and Klydon (Proprietary) Limited ("Kyldon"), as the contractor, entered into a contract under which Klydon was to supply ASP South Africa with a complete turnkey isotope enrichment plant (the "Turnkey Contract"). Among other things, the activities required to be undertaken or performed by Klydon include taking control of the assets acquired in the Molybdos Business Rescue Auction and the design of an isotope enrichment facility; the supply of components, equipment and labor required for the construction; the installation, testing and commissioning of the isotope enrichment plant; securing all required approvals, regulatory authorizations and other required consents for the operation of the plant; providing training to local ASP South Africa personnel to enable them to operate the plant going forward; and providing warranties in relation to the performance targets of the plant which are required to be met.

Klydon performed a portion of the services required under the Turnkey Contract; however, services were incomplete and many of the services were not completed within the time frame required. As a result, Klydon and ASP South Africa entered into an Acknowledgement of Debt Agreement dated November 30, 2022, whereby Klydon (i) agreed to pledge its assets (the "Pledged Assets") to ASP South Africa to secure its performance of the Turnkey Contract by December 31, 2022, and (ii) acknowledged that ASP South Africa would suffer damages in the amount of $6,050,000 ("Damage Amount") should it fail to perform. Under the Acknowledgement of Debt Agreement, the Pledged Assets would serve as collateral for Klydon's obligation to pay the Damage Amount should Klydon fail to perform. In connection therewith, also on November 30, 2022, ASP South Africa and Klydon entered into a Deed of Security Agreement whereby, if Klydon failed to complete its obligations under the Turnkey Contract by December 31, 2022, all of Klydon's rights of any nature to and interests of any nature in the Pledged Assets would be transferred to ASP South Africa. Klydon failed to complete its obligations under the Turnkey Contract by December 31, 2022, and the Company plans to perfect its interests in the assets as soon as practicable.

Private Placement

On March 14, 2023, we entered into a Securities Purchase Agreement (the "Purchase Agreement") with a single institutional investor (the "Purchaser"), pursuant to which we issued, in a private placement (the "Offering"), an aggregate of (i) 3,164,557 shares (the "Shares") of our common stock, par value $0.01 per share (the "Common Stock"); and (ii) warrants (the "Common Warrants") to purchase up to an aggregate of 3,164,557 shares of Common Stock (the "Common Warrant Shares"), at a purchase price of $1.58 per one (1) share of Common Stock and accompanying Common Warrant, for a total gross proceeds of approximately $5.0 million, before deducting placement agent fees and other offering expenses. The Common Warrants have an exercise price of $1.75 per share, are exercisable on or after September 17, 2023 and will expire on September 18, 2028. The Offering closed on March 17, 2023 (the "Closing"). The Offering was conducted pursuant to the exemption from the registration requirements of the Securities Act, available under Section 4(a)(2) and/or Rule 506(b) of Regulation D.

We engaged H.C. Wainwright & Co., LLC (the "Placement Agent") to act as its exclusive placement agent in connection with the Offering, pursuant to the engagement letter (the "Engagement Letter"), dated as of February 15, 2023, between the Company and the Placement Agent. Pursuant to the Engagement Letter, we paid the Placement Agent (i) a total cash fee equal to 7.0% of the aggregate gross proceeds of the Offering; (ii) a management fee of 1.0% of the aggregate gross proceeds of the Offering; and (iii) reimbursement of certain expenses. In addition, we issued to the Placement Agent, or its designees warrants (the "PA Warrants") to purchase up to 221,519 shares of Common Stock (the "PA Warrant Shares") at an exercise price of $1.975 per share. The PA Warrants are exercisable on or after September 17, 2023 and will expire on September 18, 2028.

We received net proceeds of approximately $4.5 million from the Offering, after deducting the Placement Agent fees and other Offering expenses. We plan to use the net proceeds from the Offering for working capital and general corporate purposes.

In connection with the Offering, on March 14, 2023, we entered into a Registration Rights Agreement with the investor (the "Registration Rights Agreement") pursuant to which we are required to file a registration statement with the Securities and Exchange Commission (the "SEC") to register for resale the Shares and the Common Warrant Shares. We are required to use our best efforts to cause the registration statement to be declared effective by the SEC by April 28, 2023 or in the event of a "full review" by the SEC, by May 29, 2023. The Registration Rights Agreement imposed a penalty of 2% monthly of the total financing amount if the registration statement was not filed by March 29, 2023, which we failed to do. As such, we are obligated to pay a penalty of $100,000 to the Purchaser.

Our Strategy

Complete development and commissioning of our first enrichment facilities located in Pretoria, South Africa.

We intend to complete the development and construction of two enrichment facilities located in Pretoria, South Africa. We currently have two enrichment facilities in Pretoria, South Africa under either construction or commissioning. The first facility is designed to enrich light isotopes such as Carbon-14. The second facility, which is substantially larger than the first, should have the potential to enrich kilogram quantities of isotopes such as Molybdenum-100 and/or Silicon-28.

In October 2021, we acquired physical assets, including equipment, of Molybdos (Pty) Limited (Molybdos) located at the plant after having been declared the winner of a competitive auction process under Section 45 of the *South Africa Consumer Protection Act, 2008* (the Molybdos Business Rescue Auction) and we licensed the ASP technology for the production of Mo-100 from Klydon Proprietary Ltd (Klydon). We subsequently entered into a turnkey contract with Klydon pursuant to which Klydon agreed to provide us a first commercial-scale isotope enrichment plant. The activities to be undertaken or performed by Klydon include: taking control of the assets acquired by us in the Molybdos Business Rescue Auction; the design of an enrichment facility; the supply of required components, equipment and labor; the installation, testing and commissioning of the enrichment facility; securing all required approvals, regulatory authorizations and other required consents for the operation of the plant; providing training to local ASP Isotopes South Africa (Proprietary) Limited personnel to enable them to operate the plant going forward; and providing warranties in relation to the performance targets of the plant which are required to be met. Klydon will also be responsible for liaising with the relevant South African authorities including the South African Non-Proliferation Council, the Nuclear Suppliers Group and International Atomic Energy Agency to ensure that the enrichment plant is compliant with international laws and guidelines.

In July 2022, we acquired a pilot plant, previously used by Klydon Proprietary Ltd (Klydon) to enrich Silicon-28 up to an abundance of 96.6%. This enriched Silicon-28 was then used for experimental work in the solar and electronics industries. We have spent the subsequent six months refurbishing and upgrading the facility so that it can produce commercial quantities of Carbon-14. In September 2022, we entered into a Memorandum of Understanding (MOU) with a North American customer for the entire capacity of this facility, under which we will supply the customer with C-14 enriched to 85%. The timing, quantity and supply date are subject to future agreement between the parties. The MOU states that the customer will supply the feedstock and we will enrich it under a tolling agreement.

Demonstrate the capability to produce C-14, Mo-100 and Si-28 using the ASP technology and capitalize on the opportunity to solve many supply chain challenges that currently exist.

We intend to demonstrate the capability to produce C-14, Mo-100 and Si-28 at a scale that can support anticipated customer demand for all three isotopes.

Historically, Russia has been the sole supplier of C-14, which is used as a tracer in the development of new pharmaceuticals and agrochemicals. The supply chain has been inherently fragile with inconsistent service. Subject to the supply of feedstock from our customer, we intend to start the enrichment of C-14 during 2024.

Mo-100 as alternative and potentially more convenient production route for Tc-99m used in nuclear medical diagnostic procedures. Mo-99's decay product, technetium-99m (Tc-99m), is used in medical procedures to diagnose heart disease and cancer, to study organ structure and function, and to perform other important medical applications. We intend to offer our Mo-100 to customers that may convert Mo-100 into Mo-99 or directly into Tc-99m, and we believe that the use of Mo-100 in this way will be an attractive alternative route to production of Tc-99m for a number of reasons.

- Only a small number of major reactors located around the world (e.g., Australia, Belgium, the Netherlands and South Africa) produce large-scale amounts of Mo-99, and these reactors are taken off-line periodically for refueling and maintenance and go off-line on an unscheduled basis due to the need for extended repairs, which results in a global Mo-99 supply chain that is lengthy, complex and prone to interruption and has experienced supply shortages. Customers that could use and stockpile Mo-100 would not have to manage the periodic shortages and supply chain challenges related to Mo-99.

- Mo-99 (a radioisotope with a 66-hour half-life) decays and loses activity in transit, so it must be moved through the supply chain quickly to minimize decay losses and it cannot be stockpiled. Mo-100 (a stable isotope of molybdenum that does not decay) will not decay in transit, so the supply chain would not be dependent on elapsed time from production of Mo-100 to the delivery of a Tc-99m dose to a hospital or clinic.

- Mo-99 (with decay product Tc-99m) must be shipped in shielded transport containers that comply with the regulatory requirements for safe transport of radioactive material. Mo-100 is stable (non-radioactive) and therefore does not have the same handling and shipping requirements.

Isotopically enriched silicon is regarded as a promising material for semiconductor quantum information due to very long coherence times and its compatibility with the readily available industrial platform. We believe that the ASP technology is ideally suited to the production of this isotope because ASP technology has the ability to enrich molecules of low molecular mass. Other electronic gasses that can likely be enriched using ASP Technology include disilane and germane.

Continue identifying potential offtake customers and strategic partners for our isotopes.

We have already seen significant interest from potential offtake customers for the isotopes that we intend to produce. In November, 2022 we entered a 25-year supply agreement for highly enriched Mo-100 with BRICEM (Beijing Research Institute of Chemical Engineering Metallurgy). The contract has a value of up to $27.0 million per annum. We have had or are currently in active dialogue with many other potential customers that could use the entire anticipated annual capacity of an initial plant. In September 2022, we entered into an MOU for a tolling agreement with a potential Canadian Customer for the entire capacity of our C-14 production facility. We are currently in discussions with potential customers that have interest in entering into long term supply agreements for kilogram quantities of Si-28 and larger quantities of Zn-68 and Cl-37.

Demonstrate the capability to produce high-assay low-enriched uranium (HALEU) using the ASP technology and meet anticipated demand for the new generation of HALEU-fueled small modular reactors and advanced reactor designs that are now under development for commercial and government uses.

We plan to begin research and development for the enrichment of uranium to demonstrate our capability to produce HALEU using the ASP technology. We anticipate a future demand for HALEU for the new generation of HALEU-fueled small modular reactors (SMRs) and advanced reactor designs that are now under development for commercial and government uses. SMRs are viewed as being cheaper, safer, and more versatile than traditional large scale nuclear reactors and development of the new technology is receiving considerable funding from the U.S. Department of Energy, as well as from the governments of other countries. There is currently no commercial production of HALEU in the United States and there has been a reliance on delivery from other countries, particularly Russia. We are currently conducting a feasibility study with respect to constructing an enrichment facility in either the United States or an international location. We would need to obtain approval of the U.S. Nuclear Regulatory Commission to produce HALEU in a U.S.-based facility.

Our Strengths

ASP technology developed by Klydon.

The aerodynamic separation technique has its origins in the South African uranium enrichment program in the 1980s and the ASP technology has been developed during the last 18 years by the scientists at Klydon. To date, the scientists at Klydon have constructed two ASP plants for the enrichment of oxygen-18 and silicon-28 in Pretoria, South Africa, which were commissioned in October 2015 and July 2018, respectively. While the technology has not yet been used to enrich either Molybdenum or Uranium or heavier isotopes, we believe the success of the enrichment process for oxygen-18 and silicon-28 has demonstrated the efficacy and commercial scalability of the ASP technology from laboratory to commercial. We have exclusive worldwide licenses from Klydon for the production of all isotopes and, if our research and development is successful (and subject to obtaining applicable regulatory approvals and appropriate licenses), we plan to commercialize many different isotopes produced using the ASP technology. To date, we have completed the construction of one isotope enrichment facility, but we have not yet produced any commercial quantities of isotopes and we have not yet demonstrated the ability to produce any isotope in commercial quantities using ASP technology.

High barriers to entry.

We have exclusive worldwide licenses to the ASP technology for the production of all isotopes. Klydon has spent the last 18 years and tens of millions of dollars developing the aerodynamic separation technique used in the ASP technology, generating critical trade secrets. We believe our competitors lag behind us in terms of the technical expertise of our senior management and the know-how contained in the aerodynamic separation technique, and will be unable to replicate the expected results of the ASP technology, even as we expect to continue to improve the existing technology and processes. Additionally, the high capital costs of development of proprietary technologies, significant lead times required to construct new enrichment facilities, as well as stringent regulatory and operating requirements applicable to enrichment facilities, adds to the significant barriers to entry for smaller competing market participants.

ASP technology is a flexible platform with the potential to produce many different isotopes that could serve a large addressable markets.

ASP technology is a flexible platform, compact in size and weight, and easily scaled to industrial level with number of separation devices added in parallel. The ASP technology also has few moving parts, with low capital and operating costs in comparison to alternatives. The technology is particularly efficient at enriching isotopes of low atomic mass. We believe that, assuming receipt of required regulatory approvals and governmental permits, the ASP technology can be deployed quickly and with a relatively minimal capital cost, to enrich many different isotopes that we believe consumers require both today and in the future in end markets such as healthcare, technology and energy. We also believe that the ASP technology is well-positioned to address a substantial global HALEU market that is contemplating a transition from petroleum-based energy to energy produced in a new generation of HALEU-fuelled SMRs and advanced reactors.

ASP technology is designed to be low cost, low energy, and environmentally friendly.

We recently completed the construction of our first isotope enrichment facility using SP technology located in Pretoria, South Africa. The ASP technology is designed to be scalable, low cost, low energy, and environmentally friendly, with no radioactive waste or hazardous materials produced in the process and planned arrangements to reuse chemical by-products.

Experienced team

Our board of directors and advisers have specialized expertise in isotopes enrichment, R&D, technology, plant development and manufacturing. Dr Einar Ronander, who serves as Chief Scientific Adviser to our board of directors, and Dr Hendrik Strydom, one of our directors, previously co-founded Klydon. The scientific team at Klydon combined has decades of experience in research and development of isotopes enrichment and amassed deep knowledge in the field.

Our board of directors and our management team also has broad experience and successful track records in biopharmaceutical research, chemicals, manufacturing and commercialization, as well as in business, operations, and finance. Our board of directors' and management team's experience was gained at leading companies and financial institutions that include, Barclays Capital, Bear Stearns, Deutsche Bank, Highbridge Capital, Investec Bank, Lehman Brothers, LyondellBasell, Morgan Stanley and Soros Fund Management.

Technical Background

What are Isotopes?

Isotopes are two or more types of atoms that have the same atomic number (number of protons in their nuclei) and position in the periodic table (and hence belong to the same chemical element), and that differ in nucleon numbers (mass numbers) due to different numbers of neutrons in their nuclei. While all isotopes of a given element have almost the same chemical properties, they have different atomic masses and physical properties.

The number of protons within the atom's nucleus is called atomic number and is equal to the number of electrons in the neutral (non-ionized) atom. Each atomic number identifies a specific element, but not the isotope; an atom of a given element may have a wide range in its number of neutrons. The number of nucleons (both protons and neutrons) in the nucleus is the atom's mass number, and each isotope of a given element has a different mass number. For example, carbon-12, carbon-13, and carbon-14 are three isotopes of the element carbon with mass numbers 12, 13, and 14, respectively. The atomic number of carbon is 6, which means that every carbon atom has 6 protons so that the neutron numbers of these isotopes are 6, 7, and 8 respectively.

There are 23 isotopes of Silicon, all of which have 14 protons and 14 neutrons but have between 8 and 30 neutrons. The table below shows a selection of those isotopes. Three isotopes are stable which have mass numbers of 28, 29 and 30 which have 14, 15 and 16 neutrons respectively. The other 20 isotopes are radioactive and decay with short half lives and are therefore do not typically exist in naturally occurring silicon. In naturally occurring silicon, the isotope with atomic mass of 28 is usually the most abundant, typically accounting for approximately 92.22% of the material. The isotope with atomic mass of 29 typically accounts for 4.69% of the material and the isotope with atomic mass of 30 typically accounts for 3.09% of the material.

Molybdenum has 33 known isotopes, ranging in atomic mass from 83 to 115, as well as four metastable nuclear isomers. Seven isotopes occur naturally, with atomic masses of 92, 94, 95, 96, 97, 98, and 100. All unstable isotopes of molybdenum decay into isotopes of zirconium, niobium, technetium, and ruthenium.

Uranium is a naturally occurring radioactive element that has no stable isotope. It has two primordial isotopes, uranium-238 and uranium-235, which have long half-lives and are found in appreciable quantity in the Earth's crust. The decay product, uranium-234 is also found. Other isotopes such as uranium-233 have been produced in breeder reactors. In addition to isotopes found in nature or nuclear reactors, many isotopes with far shorter half-lives have been produced, ranging from U-214 to U-242 (with the exception of U-220 and U-241). The standard atomic weight of natural uranium is 238.02891 with 99.27% of naturally occurring uranium being the isotope with an atomic mass of 238.051.

Selected isotopes of Silicon

Nuclide	Protons	Neutrons	Isotopic Mass	Half Life	Natural abundance
22	14	8	22.036	29 ms	
23	14	9	23.025	42.3 ms	
24	14	10	24.012	140 ms	
25	14	11	25.004	220 ms	
26	14	12	25.992	2.245 s	
27	14	13	26.987	4.15 s	
28	14	14	27.977	Stable	92.22%
29	14	15	28.977	Stable	4.69%
30	14	16	29.974	Stable	3.09%
31	14	17	30.975	157.36 min	
32	14	18	31.974	153 y	trace
33	14	19	32.978	6.18 s	
34	14	20	33.979	2.77 s	
35	14	21	34.985	780 ms	
36	14	22	35.987	450 ms	
37	14	23	36.993	90 ms	
38	14	24	37.996	90 ms	

Selected isotopes of Molybdenum

Nuclide	Protons	Neutrons	Isotopic Mass	Half Life	Natural abundance
91	42	49	90.912	15.49 min	
92	42	50	91.907	Stable	14.65%
93	42	51	92.907	4000 y	
94	42	52	93.905	Stable	9.19%
95	42	53	94.906	Stable	15.87%
96	42	54	95.905	Stable	16.67%
97	42	55	96.906	Stable	9.58%
98	42	56	97.905	Stable	24.29%
99	42	57	98.908	2.75 d	
100	42	58	99.907	Stable	9.74%
101	42	59	100.910	14.61 m	
102	42	60	101.910	11.3 m	
103	42	61	102.913	67.5 s	
104	42	62	103.914	60 s	
105	42	63	104.917	35.6 s	
106	42	64	105.918	8.73 s	
107	42	65	106.922	3.5 s	

Selected isotopes of Uranium

Nuclide	Protons	Neutrons	Isotoopic Mass	Half Life	Natural abundance
225	92	133	225.029	62 ms	
226	92	134	226.029	269 ms	
227	92	135	227.031	1.1 m	
228	92	136	228.031	9.1 m	
229	92	137	229.034	57.8 m	
230	92	138	230.034	20.23 d	
231	92	139	231.036	4.2 d	
232	92	140	232.037	68.9 y	
233	92	141	233.04	1.592 e5 y	Trace
234	92	142	234.041	2.455 e5 y	Trace
235	92	143	235.044	7.038 e8 y	0.72%
236	92	144	236.046	2.342 e7 y	Trace
237	92	145	237.049	6.752 d	Trace
238	92	146	238.051	4.468 e9 y	99.27%
239	92	147	239.054	23.45 m	
240	92	148	240.057	14.1 h	Trace
242	92	150	242.063	16.8 m	

Methods of Separation and Enrichment of Isotopes

Isotope enrichment is the process of concentrating specific isotopes of a chemical element by removing other isotopes. During the last century, a number of different methods have been developed to separate and enrich isotopes. The current separation or enrichment processes are based either on the atomic weight of the isotope, small differences in chemical reaction rates produced by different atomic weights or are based on properties not directly connected to atomic weight such as nuclear resonances.

Diffusion

Often performed on gases, but also on liquids, the diffusion method relies on the fact that in thermal equilibrium, two isotopes with the same energy will have different average velocities. The lighter atoms (or the molecules containing them) will travel more quickly and be more likely to diffuse through a membrane. The difference in speeds is proportional to the square root of the mass ratio, so the amount of separation is small and many cascaded stages are needed to obtain high purity. This method is expensive due to the work needed to push gas through a membrane and the many stages necessary.

Centrifugal

Centrifugal methods rapidly rotate the material allowing the heavier isotopes to go closer to an outer radial wall. This too is often done in gaseous form using a Zippe-type centrifuge.

A Zippe-type centrifuge relies on the force resulting from centripetal acceleration to separate molecules according to their mass, and can be applied to most fluids. The dense (heavier) molecules move towards the wall and the lighter ones remain close to the center. The centrifuge consists of a rigid body rotor rotating at full period at high speed. Concentric gas tubes located on the axis of the rotor are used to introduce feed gas into the rotor and extract the heavier and lighter separated streams. For U-235 production, the heavier stream is the waste stream and the lighter stream is the product stream. Modern Zippe-type centrifuges are tall cylinders spinning on a vertical axis, with a vertical temperature gradient applied to create a convective circulation rising in the center and descending at the periphery of the centrifuge. Diffusion between these opposing flows increases the separation by the principle of countercurrent multiplication.

In practice, since there are limits to how tall a single centrifuge can be made, several such centrifuges are connected in series. Each centrifuge receives one input and produces two output lines, corresponding to light and heavy fractions. The input of each centrifuge is the output (light) of the previous centrifuge and the output (heavy) of the following stage. This produces an almost pure light fraction from the output (light) of the last centrifuge and an almost pure heavy fraction from the output (heavy) of the first centrifuge.

Electromagnetic

Electromagnetic separation is mass spectrometry on a large scale, so it is sometimes referred to as mass spectrometry. It uses the fact that charged particles are deflected in a magnetic field and the amount of deflection depends upon the particle's mass. It is very expensive for the quantity produced, as it has an extremely low throughput, but it can allow very high purities to be achieved. This method is often used for processing small amounts of pure isotopes for research or specific use (such as isotopic tracers), but is impractical for industrial use.

Laser

In this method, a laser is tuned to a wavelength which excites only one isotope of the material and ionizes those atoms preferentially. The resonant absorption of light for an isotope is dependent upon its mass and certain hyperfine interactions between electrons and the nucleus, allowing finely tuned lasers to interact with only one isotope. After the atom is ionized it can be removed from the sample by applying an electric field. This method is often abbreviated as AVLIS (atomic vapor laser isotope separation). This method has only recently been developed as laser technology has improved, and is currently not used extensively.

Chemical Methods

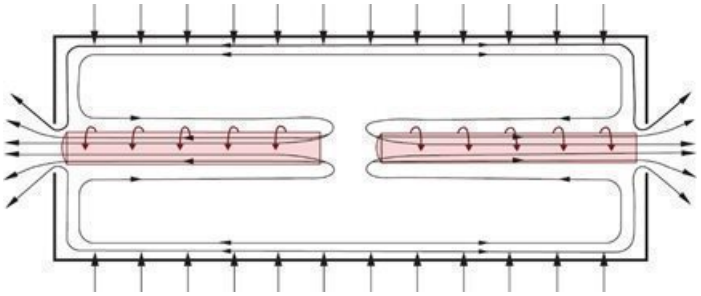
Although isotopes of a single element are normally described as having the same chemical properties, this is not strictly true. In particular, reaction rates are very slightly affected by atomic mass. Techniques using this are most effective for light atoms such as hydrogen. Lighter isotopes tend to react or evaporate more quickly than heavy isotopes, allowing them to be separated. This is how heavy water is produced commercially

Gravity

Isotopes of carbon, oxygen, and nitrogen can be purified by chilling these gases or compounds nearly to their liquefaction temperature in very tall (200 to 700 feet (61 to 213 m)) columns. The heavier isotopes sink and the lighter isotopes rise, where they are easily collected.

The Aerodynamic Separation Process (ASP) Technology

ASP technology is proprietary technology licensed from Klydon which succeeds earlier work, first detailed in the scientific media in the mid-1970s, relating to an industrial scale enrichment plant for uranium that was constructed utilizing the so-called “stationary-wall centrifuge”. The original technology was highly energy consuming and was not able to compete on an economic basis with other methods of isotope separation. The innovative development of the ASP technology over the past 18 years has culminated in a more advanced separation device that we believe can compete on a commercial scale with other methods of isotope separation. The ASP separation device separates both gas species and isotopes in a volatile state via an approximate flow pattern as shown below.



Gas flow pattern inside ASP separation device.

The ASP enrichment process uses an aerodynamic technique similar to a stationary wall centrifuge. The isotope material in raw gas form enters the stationary tube at high speed by tangential injection through finely placed and sized openings in the surface of the tube. The gas then follows a flow pattern that results in two gas vortexes occurring around the geometrical axis of the separator. The isotope material becomes separated in the radial dimension as a result of the spin speed of the isotope material reaching several hundred meters per second. An axial mass flow component in each tube feeds isotope material to the respective ends of the separator where the collection of the portions of isotope material is accomplished.

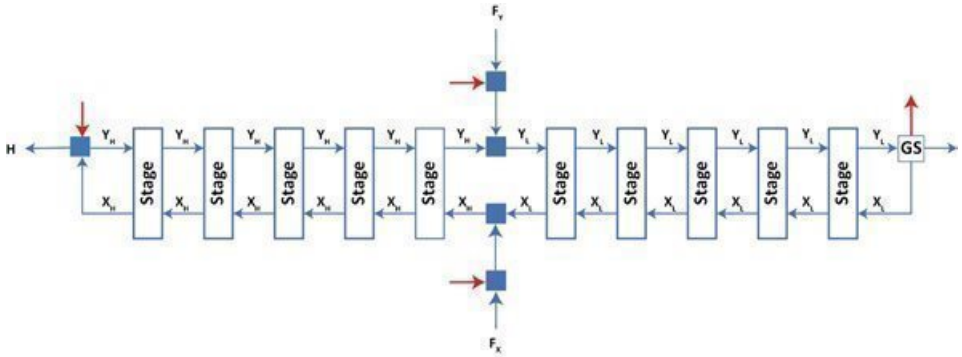
The advantages of ASP technology are as follows:

- No moving parts, with low capital and operating costs in comparison to alternatives.
- Compact in size and weight.
- Easily scaled to industrial level with number of separation devices added in parallel.

- The separation process occurs inside a closed cylindrical container and is a volume technology, i.e., the process efficiency is not affected by poisoning of surface contaminates as is the case for surface separation processes.
- ASP operates very efficiently at molecular masses below 100 atomic mass units, unlike other separation processes which are more efficient higher masses, which ASP can achieve equally well or to a superior degree.
- ASP easily separates hydrogen gas from other gas components, e.g., harvesting hydrogen gas from carbon monoxide and carbon dioxide and altering the ratio of syngas mixture.
- With the right material choice ASP handles even the most corrosive gases.
- ASP can separate any isotopes that have a gaseous or volatile chemical compound.
- Most of the subsystems are procured from off-the-shelf components.
- An ASP plant can be constructed in any country that adheres to the International Atomic Energy Agency (IAEA) protocols for the protection of dual use technology.

ASP Plant Configuration

The figure below shows a schematic of an ASP cascade in operation. The cascade consists of several enrichment stages, connected in a 1-up-1-down cascade configuration. The stages can be grouped into segments. (This method of organizing stages is not reflected in the figure)



The bold blue arrows represent flows of the element into and out of the cascade:

- H is the product, enriched in the isotope
- L is the tails, stripped of the isotope
- F = FX + FY is the feed stream at natural isotopic composition:
- FX is the feed into the product stream of an adjoining stage.
- FY is the feed into the tails stream of an adjoin

Each stage in the cascade is operated in one of two configurations:

(1) A net backward flow of the isotope: Xi > Yi. These stages are referred to as “product”, situated in the so-called “product cascade section”, and their flows are marked with an “H” subscript.

(2) A net forward flow of isotope: Xi < Yi. These stages are referred to as “tails”, situated in the so-called “tails cascade section”, and their flows are marked with an “L” subscript.

The red arrows represent the addition or extraction of carrier gas from the process. The arrows have been added for clarity and orientation, but the mass flows of the carrier gas will be ignored in the rest of the discussion as it pertains to the isotope mass flows only (as represented by the blue arrows). The carrier gas mass flows can be superimposed on any isotope mass balance using the molar mass characteristics of the ASP stages (see below).

The block marked “GS” represents the gas separator: a piece of equipment used to separate the carrier gas from the element of interest to the degree necessary to provide a suitable reflux stream to the tails cascade section.

The blue squares are simply suitable areas where streams can be split or mixed.

An ASP stage is characterized by functions of Y, the flow of isotope in its tails stream. The characteristics of interest are:

- á(Y): the separation factor between the tails and product streams.
- MY(Y): the molar mass of the tails stream.
- MX(Y): the molar mass of the product stream.
- P(Y): the stage’s power usage.
- X(θ,Y): the flow of Zinc in the product stream, where θ= Y/(X+Y) is the cut defined in terms of isotope flows.

Note the following:

- áis the ratio of the tails and product stream abundance ratios.
- Y, X(θ,Y) and α(Y) describe the stage’s behaviour with regards to Zinc, while MY(Y) and MX(Y) defines its behaviour with regards to the carrier gas.
- P, the stage’s power usage, depends on the ASP separator, but also on factors such as compressor efficiency, friction losses etc. It is therefore a partial function of stage design.
- It is possible to define Pmin, the theoretical minimum energy usage of a stage, by assuming 100% efficient compressors and no losses in the stage. Pmin is a function of the ASP separator only. In practice P is a more useful metric, as the contribution of compressor inefficiencies to power consumption is significant.
- Except for X, the stage’s characteristics are not defined in terms of the cut θ, as they are simply not sensitive to it above a certain lower limit θmin. In practice θmin is small enough that it has no influence on the normal operating envelope of the stage.
- X is per definition a function of Y via θas indicated.

The cut of an ASP stage can be dynamically adjusted to any value larger than θmin, allowing its operating point to be changed online during production.

All stages in the product cascade section are operated at the same point < XH,YH >, where XH > YH, ensuring that a net backward flow of the process element, H = XH — YH is achieved. This corresponds to a cut of less than 50% and ensures a positive flow of enriched product.

All stages in the tails cascade section are operated at the same point < XL,YL >, where XL < YL, ensuring that a net backward flow of the process element, L = XL — YL is achieved. This corresponds to a cut of more than 50% and ensures a positive flow of stripped tails.

Depending on the production requirements of the cascade the product and tails section operation points can be moved relative to each other during production, obtaining different combinations of H and L (and therefore different feeds F = H + L). The smaller H (or L) is chosen, the closer the product (or tails) section cut moves to 50%. If all stages are operated at a cut of 50%, the cascade is operated at full reflux, no product, tails, or feed streams are present, and the maximum process element concentration gradient will exist.

ASP Technology In Use

To date, the scientists at Klydon have constructed two ASP plants for the enrichment of oxygen-18 and silicon-28 in Pretoria, South Africa, which were commissioned in October 2015 and July 2018, respectively, and remain fully operational. We believe the success of the enrichment of oxygen-18 and silicon-28 has demonstrated the efficacy and commercial scalability of the ASP technology. We are currently constructing two enrichment plants, which, if successful, will be able to produce C-14, Mo-100 and/or Si-28.

Nuclear Medicine

Nuclear medicine is a medical specialty that utilizes radioactive isotopes, referred to as radionuclides, to diagnose and treat disease. These radionuclides are incorporated into radiopharmaceuticals and introduced into the body by injection, swallowing, or inhalation. Physiologic/metabolic processes in the body concentrate the tracers in specific tissues and organs; the radioactive emissions from the tracers can be used to noninvasively image these processes or kill cells in regions where radionuclides have concentrated.

Other types of noninvasive diagnostic procedures — for example, computed tomography (CT) and magnetic resonance imaging (MRI) — can detect anatomical changes in tissues and organs as the result of disease. Nuclear medicine procedures can often detect the physiological and metabolic changes associated with disease before any anatomical changes occur. Such procedures can be used to identify disease at early stages and evaluate patients' early responses to therapeutic interventions.

Single Photon Emission Computed Tomography (SPECT) generates three-dimensional (3D) images of tissues and organs using radionuclides that emit gamma rays; the most used radionuclide is Technitium-99m (Tc-99m), often referred to as the 'work-horse' of nuclear medicine. Individual gamma rays emitted from the decay of these radionuclides (i.e., single photon emissions) are detected using a gamma camera. This camera technology is used to obtain two-dimensional (2D) images; 3D SPECT images are computer generated from many 2D images recorded at different angles.

Positron Emission Tomography (PET) generates 3D images of tissues and organs using tracers that emit positrons (i.e., positive electrons): for example, fluorine-18 (F-18). Annihilation reactions between the positrons from these radionuclides and electrons present in tissues and organs produce photons. (Two photons are emitted simultaneously for each annihilation reaction and essentially travel in opposite directions.) The photon pairs are detected with a camera having a ring of very fast detectors and electronics. PET images generally have a higher contrast and spatial resolution than do SPECT images. However, PET equipment is more expensive and therefore not as widely available as SPECT equipment. Additionally, most PET tracers have short half-lives (e.g., nitrogen-13 (N-13): 10 minutes, carbon-11 (C-11): 20 minutes, and F-18: 110 minutes), so they must be produced close to their point of use.

Technetium-99m (Tc-99m)–the most widely used radioisotope in Nuclear Imaging

Tc-99m is used in approximately 80 percent of all nuclear medicine procedures performed worldwide each year.

Tc-99m is a particularly useful imaging radionuclide because it:

- Has a sufficiently long half-life (~6 hours) to be usable in nuclear medicine procedures.
- Emits energetic gamma rays (140 kiloelectron volts [keV]) that can be detected efficiently with widely available camera technologies.
- Provides low patient doses for some procedures because of its short half-life and lack of alpha or beta radiations

Tc-99m-based radiopharmaceuticals are used to diagnose disease in many tissue and organ systems, including bone, brain, heart, kidneys, liver, and lungs. About 50 percent of Tc-99m utilization in the United States is in nuclear cardiology, predominantly for myocardial perfusion imaging which images blood flow through heart muscle.

Because Tc-99m has a half life of just 6 hours, it cannot be stored or shipped long distances and it is currently produced using a technetium generator, which contains Molybdenum-99 which has a half-life of about 66-hours. In the reactor, Mo-99 decays to Tc-99m by emitting a beta particle (an electron). About 88 percent of the decays produce Tc-99m, which subsequently decays to the ground state, Tc-99g, by emitting a gamma ray. About 12 percent of the decays produce Tc-99g directly. Tc-99g decays to stable (i.e., nonradioactive) ruthenium-99 (Ru-99) after emitting a beta particle.

Technetium generators are systems that store Mo-99 and allow its decay product, Tc-99m, to be recovered for use. Most technetium generators are designed to be used with high-specific-activity Mo-99 (>1,000 Ci/g) produced by U-235 fission. The generator consists of an alumina (Al2O3) column having the diameter of a large pencil along with associated filters and tubing for obtaining Tc-99m

This apparatus is installed into radiation-shielded packages for shipment to Tc-99m suppliers. The generator includes both the package and its contained apparatus. Technetium generators can contain from 1 to 19 Ci of Mo-99, matched to address the needs and workloads of Tc-99m suppliers

It takes 18-24 hours to prepare technetium generators for shipment. Preparation involves loading the molybdate solution onto the columns and sterilizing them; installing the columns, tubing, and filters into the shielded generator package; and packaging the generators for shipment. Tc-99m generators are typically shipped to Tc-99m suppliers within a day of their manufacture. Generators are shipped in regulatory-compliant boxes. The delivery methods can be air, ground, or a combination of both depending on customer location and contracted transportation network.

The Mo-99 Market

The global medical community depends on a reliable supply of the radioisotope Mo-99 for nuclear medical diagnostic procedures. As previously described, Mo-99's decay product, technetium-99m (Tc-99m), is used in over 40,000 medical procedures in the United States each day to diagnose heart disease and cancer, to study organ structure and function, and to perform other important medical applications.

In 2020, it is estimated (by Future Market Insights Inc, a global market research firm), that the Molybdenum 99 market generated revenues of approximately $3.8 billion. North America accounted for almost half of the Mo-99 demand. Approximately 62% of Mo-99 was used in hospitals while approximately 38% of Mo-99 use was in diagnostic centers.

The Mo-99 Supply Chain

The global Mo-99 supply chain is inherently fragile. The fragility stems primarily from two factors:

1. Mo-99 and its daughter isotope Tc-99m have short half-lives (66 and 6 hours, respectively) and therefore cannot be stockpiled. These radioisotopes need to be produced and delivered to the supply chain on a weekly or more frequent basis.

2. Global supply of Mo-99 currently relies on a small number of aging reactors worldwide and a small number of suppliers.

The current Mo-99 supply chain is also lengthy and prone to interruption throughout its course.

Recent Government Efforts to Increase Mo-99 Availability

Given the regular supply side shortages in the Mo-99 market, and widely anticipated shutdown of many of the current reactors, there is considerable focus on alternative methods of Tc-99m production. In 2012, Congress passed the American Medical Isotopes Production Act (AMIPA), which directed the National Nuclear Security Administration (NNSA) to establish a technology-neutral program to support the establishment of domestic supplies of Mo-99 without the use of HEU. NNSA has implemented this by competitively awarding 50%/50% cost-shared cooperative agreements to commercial entities and providing funds to the Department of Energy's (DOE) National Laboratories to support development of non-HEU Mo-99 production technologies.

NNSA currently manages cooperative agreements with three U.S. companies, all developing diverse Mo-99 production technologies:

- NorthStar Medical Radioisotopes, LLC (Beloit, Wisconsin)
  - Neutron capture technology using molybdenum-98 targets
  - Accelerator-based technology using molybdenum-100 targets
- SHINE Technologies, LLC (Janesville, Wisconsin)
  - Accelerator with fission technology to produce Mo-99 with an LEU solution target
- Niowave, Inc. (Lansing, Michigan)
  - Superconducting electron linear accelerator with fission technology to produce Mo-99 with LEU targets

Mo-100 as an Alternative Intermediate to Produce Mo-99 and Tc-99m

Mo-100 is a stable isotope of molybdenum that does not decay. Naturally occurring molybdenum contains approximately 9.74% molybdenum-100. When highly enriched so that the Molybdenum contains >95% of the Mo-100 isotope, it can be used to produce either Mo-99 or Tc-99 via either photon-induced transmutation of Mo-100 into Mo-99 or via proton bombardment of Mo-100 into Tc-99m. The use of particle accelerators for the production of Mo-99 and direct production of Tc-99m has been studied extensively and the use of a particle accelerator conveys certain advantages and disadvantages. Accelerators produce ion beams and accelerate ions to higher energies by using oscillating electromagnetic fields. The accelerated particle beams have the capability of irradiating specific targets to produce Mo-99 and/or Tc-99m.

We intend to offer our Mo-100 to customers that may convert Mo-100 into Mo-99 or Mo-100 directly into Tc-99m. We believe that customers will be able to convert Mo-100 into Mo-99 using a cyclotron or a linear accelerator. The Mo-99 can then be converted into Tc-99m using a technetium generator. The technetium generators that are currently available will likely require some modifications in order to use the Mo-99 that has been produced via a cyclotron or a linear accelerator. These modifications will likely mean that new generator will require approval by healthcare regulators such as the Food and Drug Administration (FDA) in the United States and the European Medicines Agency (EMA) in Europe.

Customers may convert Mo-100 directly into Tc-99m using a cyclotron, which would eliminate the need for a technetium generator. To date, only one healthcare regulator (Health Canada) has approved the use of Tc-99m that has been directly produced from Mo-100 in a low powered cyclotron. We believe it is likely that healthcare regulators in other countries will also require clinical data to support the use of Tc-99m that is produced directly from Mo-100.

ASP Technology for Silicon-28 Enrichment

Si-28 is a stable isotope of silicon that does not decay. Isotopically enriched Si-28 is regarded as an ideal host material for semiconducting quantum computing due to the lack of Si-29 nuclear spins. The presence of Si-29 in concentrations above 500 parts per million (ppm) (0.05%) prevents effective performance. The lower the concentration of Si-29, the better a silicon quantum processor will perform in terms of computational power, accuracy and reliability. Unlike traditional centrifuges, which are suited to enriching gases with a high molecular mass, ASP Technology is highly suited to of enriching gases with a low molecular mass such as silane (SiH4).

Quantum computers are expected to be thousands or millions of times more powerful than the most advanced of today's conventional computers, opening new frontiers and opportunities in many industries, including medicine, artificial intelligence, cybersecurity, global logistics and global financial systems. Many countries around the world are investing heavily in the development of quantum computing technology, with governments and key corporates (such as Intel, IBM, Google, Microsoft and others) vying for leadership in this emerging strategic industry.

ASP Technology for Carbon-14 Enrichment

C-14 is a radioactive isotope of carbon with a half life of 5,700 years that has a natural abundance of 1 part per trillion. The different isotopes of carbon do not differ appreciably in their chemical properties. This resemblance is used in chemical and biological research, in a technique called carbon labelling: carbon-14 atoms can be used to replace nonradioactive carbon, in order to trace chemical and biochemical reactions involving carbon atoms from any given organic compound.

Carbon-14 is produced as a waste product in certain nuclear reactors. In September 2022, we entered into an MOU with a potential Canadian Customer that provides consulting services to many nuclear reactors in North America. Under the terms of the MOU, it is anticipated that the customer will supply C-14 already enriched to at least 0.5%, which it sources from the waste products of nuclear reactors. We will enrich the C-14 to an abundance of over 85% under a "take or pay" agreement. The customer will be responsible for all non-enrichment activities and all marketing and sales of all finished product.

ASP Technology for Uranium Enrichment

We believe our ASP technology is also capable of enriching Uranium, which we may be able to commercialize as a nuclear fuel component for use in the new generation of HALEU-fuelled small modular reactors that are now under development for commercial and government uses.

Uranium is a naturally occurring element and is mined from deposits located in Kazakhstan, Canada, Australia, and several other countries including the United States. According to the World Nuclear Association ("WNA"), there are adequate measured resources of natural uranium to fuel nuclear power at current usage rates for about 90 years. In its natural state, uranium is principally comprised of two isotopes: uranium-235 ("U-235") and uranium-238 ("U-238"). The concentration of U-235 in natural uranium is only 0.711% by weight. Most commercial nuclear power reactors require LEU fuel with a U-235 concentration greater than natural uranium and up to 5% by weight. Future reactor designs currently under development will likely require higher U-235 concentration levels of up to 20%. Uranium enrichment is the process by which the concentration of U-235 is increased (see discussion on HALEU demand below).

Separative work units ("SWU") are a standard unit of measurement that represents the effort required to transform a given amount of natural uranium into two components: enriched uranium having a higher percentage of U-235 and depleted uranium having a lower percentage of U-235. The SWU contained in LEU is calculated using an industry standard formula based on the physics of enrichment. The amount of enrichment deemed to be contained in LEU under this formula is commonly referred to as its SWU component and the quantity of natural uranium deemed to be contained in LEU under this formula is referred to as its uranium or "feed" component. Currently, it is fairly common practice to purchase both the SWU and uranium components of LEU from the enrichment company. Therefore, LEU prices typically consist of two prices or components: SWU and uranium.

The following outlines the steps for converting natural uranium into LEU fuel, commonly known as the nuclear fuel cycle:

- ***Mining and Milling.*** Natural, or unenriched, uranium is removed from the earth in the form of ore and then crushed and concentrated.
- ***Conversion.*** Uranium ore concentrates ("UO") are combined with fluorine gas to produce uranium hexafluoride ("UF"), a solid at room temperature and a gas when heated. UF is shipped to an enrichment plant.
- ***Enrichment.*** UF is enriched in a process that increases the concentration of the U isotope in the UF from its natural state of 0.711% up to 5%, or LEU, which is usable as a fuel for current light water commercial nuclear power reactors. Future commercial reactor designs may use uranium enriched up to 20% U, or HALEU.
- ***Fuel Fabrication.*** LEU is then converted to uranium oxide and formed into small ceramic pellets by fabricators. The pellets are loaded into metal tubes that form fuel assemblies, which are shipped to nuclear power plants. As the advanced reactor market develops, HALEU may be converted to uranium oxide, metal, chloride or fluoride salts, or other forms and loaded into a variety of fuel assembly types optimized for the specific reactor design.
- ***Nuclear Power Plant.*** The fuel assemblies are loaded into nuclear reactors to create energy from a controlled chain reaction. Nuclear power plants generate approximately 20% of U.S. electricity and 10% of the world's electricity.
- ***Used Fuel Storage.*** After the nuclear fuel has been in a reactor for several years, its efficiency is reduced and the assembly is removed from the reactor's core. The used fuel is warm and radioactive and is kept in a deep pool of water for several years. Many utilities have elected to then move the used fuel into steel or concrete and steel casks for interim storage.

The World is Transitioning to Newer Smaller Reactors

As the world transitions to a decarbonized electric grid, society is gradually decreasing its reliance on fossil fuels and increasing its reliance on "clean energy". There appears to be bipartisan support for the growth of nuclear energy and the Biden Administration has identified carbon-free nuclear power as an essential part of achieving a net-zero CO2 economy by 2050. Nuclear power, through the operating light water reactor fleet and the deployment of advanced reactors, is poised to be an increasing contributor to carbon free energy in the U.S. and internationally. The United States leads the world in technology innovation with more developers of advanced reactors than any other country.

Small modular reactors (SMRs) are advanced nuclear reactors that have a power capacity of up to 300 MW(e) per unit, which is about one-third of the generating capacity of traditional nuclear power reactors. SMRs, which can produce a large amount of low-carbon electricity, are:

- ***Small*** — physically a fraction of the size of a conventional nuclear power reactor.
- ***Modular*** — making it possible for systems and components to be factory-assembled and transported as a unit to a location for installation.
- ***Reactors*** — harnessing nuclear fission to generate heat to produce energy.

Many of the benefits of SMRs are inherently linked to the nature of their design — small and modular. Given their smaller footprint, SMRs can be sited on locations not suitable for larger nuclear power plants. Prefabricated units of SMRs can be manufactured and then shipped and installed on site, making them more affordable to build than large power reactors, which are often custom designed for a particular location, sometimes leading to construction delays. SMRs offer savings in cost and construction time, and they can be deployed incrementally to match increasing energy demand.

In comparison to existing reactors, proposed SMR designs are generally simpler, and the safety concept for SMRs often relies more on passive systems and inherent safety characteristics of the reactor, such as low power and operating pressure. This means that in such cases no human intervention or external power or force is required to shut down systems, because passive systems rely on physical phenomena, such as natural circulation, convection, gravity and self-pressurization. These increased safety margins, in some cases, eliminate or significantly lower the potential for unsafe releases of radioactivity to the environment and the public in case of an accident.

SMRs have reduced fuel requirements. Power plants based on SMRs may require less frequent refueling, every 3 to 7 years, in comparison to between 1 and 2 years for conventional plants. Some SMRs are designed to operate for up to 30 years without refueling. SMRs are under construction or in the licensing stage in Argentina, Canada, China, Russia, South Korea and the United States of America.

Within the last five years significant legislation supporting the development and deployment of advanced reactors has been enacted: the Nuclear Innovation and Modernization Act, the Nuclear Energy Innovation and Capabilities Act, the Energy Act of 2020 and the Infrastructure Investment and Jobs Act. In addition, Congress established and funded the Advanced Reactor Demonstration Program which now supports two advanced reactor demonstrations to be deployed within seven years and eight other advanced reactor projects.

SMRs will require a different grade of enriched Uranium

Many advanced reactors, including the majority of the Advanced Reactor Demonstration Program awardees, will require High Assay Low Enriched Uranium (HALEU), and fuel forms very different from those manufactured for the current Light Water Reactors (LWRs). For example, the current generation of LWRs uses fuel enriched to less than 5% uranium-235. In contrast, many advanced non-LWR designs require enrichments between 5% and 20% with most above 10%.

Currently it is not possible to purchase HALEU between 10% and 20% from a commercial enricher in the United States. In the U.S., the infrastructure for the front-end of the fuel cycle for the utilization of low enriched uranium up to 5% U-235 is well defined. The U.S. has mining, conversion, enrichment, fabrication, and transportation capability. However, the infrastructure for producing and utilizing HALEU, in particular enrichments above 10%, is not established in the U.S. The mining and conversion infrastructure are common to all enrichment levels.

In 2020, the Department of Energy (DOE) selected two companies for awards under the Advanced Reactor Demonstration Program (ARDP) Pathway 1: Advanced Reactor Demonstrations. Both reactor designs require HALEU and can be operational in about seven years. Today, it is estimated that the companies selected for the demonstration pathway will require HALEU for their reactors beginning in 2024 to support fuel fabrication ahead of reactor startup. In addition, one of the companies under Pathway 2: Risk Reduction for Future Demonstrations will require HALEU in the 2024-2025 timeframe and other companies in Pathway 2 and 3 of the ARDP will also require HALEU. Privately funded companies are also working to deploy HALEU fueled reactors by the mid-2020s.

The Nuclear Energy Institute (NEI) believes that it is virtually impossible for HALEU to be provided to these companies in the needed quantities and timeframes from DOE inventories or commercial enrichers located in the U.S or Western Europe. Therefore, acquiring HALEU from other international suppliers will be required in the near term to support the larger goal of deploying advanced reactors in the U.S. in a timely manner. Deploying these reactors before 2030 will support climate goals and position the U.S. to be a strong exporter of advanced reactor technology. Per the recent NEI white paper, a robust domestic HALEU infrastructure is necessary to support both the domestic deployment of advanced reactors and the export of U.S. advanced reactor technologies requiring HALEU.

In a letter to the DOE captioned “Updated Need for High-Assay Low Enriched Uranium” dated December 20, 2021, the NEI provided an estimate of what U.S. HALEU demand may be during the next 15 years:

Estimated Annual Requirements for High Assay Low Enriched Uranium to 2035 (MTU/yr)

Company	A	B	C	D	E	F	G	H	I	J	Total	Cumulative
Year												
2022	0.1	0.4					0.2		1.1	0.0	1.8	1.8
2023	0.1	3.1							4.4	0.1	7.7	9.5
2024	1.0	5.6	0.2	3.0			1.5		6.6	0.1	18.0	27.5
2025	1.0	3.8	0.4	3.0		5.0			11.0	1.6	25.8	53.3
2026	1.0	15.1		4.9		10.0	2.0	24.2	13.2	1.7	72.1	125.4
2027	1.0	26.5		7.9			4.0	24.2	13.2	1.9	78.7	204.1
2028	1.0	37.8		16.6		13.0	23.0	24.2	13.2	2.0	130.8	334.9
2029	1.0	26.3	1.8	30.5	17.0	18.0	14.0	24.2	16.5	2.4	151.7	486.6
2030	1.0	34.4	1.8	40.4	46.0	18.0	30.0	24.2	16.5	2.7	215.0	701.6
2031	23.0	42.5	6.2	53.0	29.0	22.0	33.0	24.2	16.5	2.9	252.3	954.0
2032	35.0	52.9	12.5	67.6	46.0	40.0	50.0	48.4	19.8	3.1	375.3	1329.2
2033	47.0	63.5	32.2	82.1	46.0	32.0	80.0	48.4	19.8	3.2	454.2	1783.4
2034	58.0	76.1	62.4	96.7	46.0	36.0	80.0	48.4	19.8	3.7	527.1	2310.5
2035	70.0	90.9	96.0	112.4	91.0	29.0	50.0	48.4	22.0	4.1	613.8	2924.3

Notes:

- The material needs listed above are in metric tons of uranium per year and are a small amount compared to the approximately 2000 MTU used annually by the existing fleet of reactors.
- The material needs listed above include enrichments between 10.9 and 19.75% U-235.
- The year the material is needed is for fuel fabrication. Insertion in the reactor and reactor operations will occur in a later year.

- The material needs that are less than 1 MTU/year are for irradiation samples, lead test rods and lead test fuel assemblies.
- The material needs represent a few scenarios
  - The deployment of an advanced fuel design for the existing fleet of light-water reactors.
  - The deployment of multiple reactors of the same design that will not require refueling for many years.
  - The deployment of reactors that have annual refueling requirements.
- These reactors include a range of sizes from a few Megawatt electric to 100s of Megawatt electric.
- The data above does not include utilities that are considering enrichment between 5% and 10%.

ASP Technology is ideally suited to the production of HALEU

We believe that we are in a very different position to many of the entrenched domestic and international enrichers. Our innovative isotope enrichment process has a number of advantages over traditional gas centrifuges and other novel approaches currently being explored by other companies: cheaper in Capex, faster in construction, more flexible in design and location.

We estimate that the capital cost of constructing an ASP plant for uranium enrichment is approximately 75% cheaper than that of a traditional gas centrifuge enrichment facility. Our manufacturing plants are modular, so our construction time is likely faster and more flexible than competing technologies. Our enrichment facilities are smaller than traditional gas centrifuges which means we can place them near fuel fabrication facilities for enhanced security of production and transportation. Our operating costs of enriching uranium to 15.5% - 19.75% U-235 should be comparable to or cheaper than costs for other methods of uranium enrichment.

The table below compares the ASP process with a traditional gas centrifuge when applied to a 20 mT plant.

	ASP Plant	**Gas Centrifuge**
Separation mechanism	Stationary Wall Centrifuge	Differential diffusion
Capital Cost per plant	<$150 million	>$800 million
Energy use (kWh) per SWU	<500	50-240
Construction time	2-3 years	2-3 years
Levelized cost per SWU*	$65	$140

* for enrichment from 0.71% U235 to 5% U235

We are currently conducting a feasibility study with respect to constructing an enrichment facility in either the United States or an international location. Construction of a new ASP enrichment facility in US would be done in three phases. The first phase would involve the construction and validation of an ASP test bench, the engineering design of the first segment and obtaining required permits and licenses from regulators. Excluding the licensing process, we expect this phase would take approximately 9-12 months.

The second phase would involve the construction of the first segment and control systems for the plant and the engineering design of the additional stages. We expect this stage would take approximately 9-12 months, resulting in the plant capable of operating in a close-loop setup which would demonstrate enrichment and start to produce small quantities of enriched Uranium.

The third phase would involve the construction of the remaining segments that will complete the plant and the commissioning phase. We expect this phase would take approximately 20-30 months and the production volume would gradually ramp up to the final capacity of 20 metric tons per year. Importantly, subject to licensure, we can produce commercial quantities of HALEU by 2026 that would satisfy the anticipated demand from all the advanced reactor currently in development. We can supply HALEU at a price lower than the HALEU currently imported from international enrichers and considerably lower than any potential domestic supply that may evolve.

Much of the control systems, compressors and hardware used in a uranium enrichment plant would be similar to parts used to construct our Molybdenum plant in Pretoria. Our molybdenum plant uses molybdenum hexafluoride (MoF6) and a Uranium pant would use uranium hexafluoride (UF6).

Intellectual Property

Our business will depend on the proprietary ASP technology that we licensed from Klydon. To date, we and Klydon have relied exclusively on trade secrets and other intellectual property laws, non-disclosure agreements with our respective employees, consultants, vendors, potential customers and other relevant persons and other measures to protect our intellectual property, and intend to continue to rely on these and other means. As we intend to transition into the commercialization of isotopes, we envision our intellectual property and its security becoming more vital to our future. Pursuing patent protection remains part of the intellectual property protection philosophy and strategy and the advisability of establishing provisional patent rights is continuously assessed on a case-by-case basis in respect of both conceptual aspects and the specific applications thereof. Such assessments are made in consultation with regulatory bodies and with due consideration to the prospects of successfully obtaining patent protection in light of any disclosure constraints that are imposed by such bodies.

NMS Letter

On October 25, 2022, our outside counsel received a letter (the "NMS Letter") from a law firm acting on behalf of Norsk Medisinsk Syklotronsenter AS ("NMS"), asserting, among other things, that the grant of a license to the ASP technology for the separation of isotopes of Molybdenum that have medical applications to ASP Isotopes Inc. by Klydon violates a pre-existing exclusive sub-license to the ASP technology granted to Radfarma, as more fully described below. NMS and ASP Isotopes had previously been briefly in discussions regarding a potential future collaboration on technology and product development. However, these preliminary discussions have not been active for several months, after death of a lead NMS scientist and ASPI decision to explore other options.

The NMS Letter makes reference to: (1) a license agreement entered into on October 25, 2013 by Klydon and API Labs Pharmaceuticals (Proprietary) Limited ("API Labs") to license the ASP technology for enriching certain isotopes of the element Molybdenum ("2013 API Labs License"); and (2) an exclusive sub-license to the ASP technology granted on October 1, 2019 to Radfarma, as licensee, by API Labs and SaPhotonica Limited ("SaPhotonica"), as licensors (the "2019 Radfarma Sub-License"). The NMS Letter states that Radfarma is a joint venture that is 45% owned by NMS and 45% owned by SaPhotonica.

The NMS Letter asserts, among other things, that the grant of a license to the ASP technology to ASP Isotopes Inc. by Klydon violates a covenant in the 2019 Radfarma Sub-License that the licensors shall not be entitled, directly or indirectly, to use, grant or otherwise give the rights, or any similar rights, which were granted to Radfarma under the 2019 Radfarma Sub-License to any other person for use in the territory. The sub-license granted to Radfarma in the 2019 Radfarma Sub-License related to the use of intellectual property rights related to the ASP technology for the separation of isotopes of Molybdenum that have medical applications. "Territory" is defined in the 2019 Radfarma Sub-License as "the Kingdom of Norway for the construction of the 20-kilogram capacity plants; and *means the international market where distribution agreements can be produced*." The NMS Letter asserts that while Klydon purported to give to ASP Isotopes Inc. a license to market the ASP technology globally, these rights were already granted to Radfarma.

The NMS Letter includes a request for ASP Isotopes Inc. to enter into discussions for an agreement with NMS based on terms proposed in previous correspondence from NMS. The previous correspondence from NMS included the following key prerequisites to a possible cooperation between NMS and ASP Isotopes Inc.:(1) NMS will be granted the right to set up an enrichment facility for a Mo-100 in Norway; (2) NMS will be granted the exclusive rights to sales, marketing, and distribution in Europe, while ASPI gets similar rights for the rest of the world; and (3) NMS will support the development of the Mo-100 target production and Mo-99 generator production and if required the sales operations of ASPI.

The NMS Letter does not include a threat of litigation against ASP Isotopes Inc. or any parties to the 2013 API Labs License or 2019 Radfarma Sub-License. However, if the licensed rights granted to us are found to be invalid or unenforceable (in whole or in part), or if our exclusive license agreement with Klydon is terminated or Klydon, as licensor, fails to abide by the terms of our exclusive license agreement, our ability to commercialize our future isotopes would suffer and our business, results of operations and financial condition may be adversely affected. If the prior sub-license granted to Radfarma is found to be valid, we would be required to cease using the ASP technology for the separation of isotopes of Molybdenum that have medical applications (unless we were able to obtain a license from Radfarma), and we would focus our business operations on the enrichment of isotopes other than Molybdenum.For example, instead of continuing to pursue the production of Molybdenum-100, we could focus on the production and commercialization of zinc, silicon and/or chlorine using the ASP technology. We expect that our Mo-100 plant in South Africa would need to be redesigned and retrofitted in order to produce other isotopes, which would take approximately six months and cost approximately $1.0 million. See "Risk Factors — Risks Related to Our Intellectual Property" — "We have received a letter asserting that the license for the ASP technology granted to us from Klydon, which is critical to our business, may be invalid because these rights were already granted to a third party, Radfarma" and "Our license for the ASP technology with Klydon may be found to infringe third party intellectual property rights."

Based on information currently available, and after consultation with legal counsel in South Africa, management believes that our exclusive license for the enrichment of Molybdenum-100 and all other isotopes from Klydon are valid and the company will vigorously defend its rights.

Regulatory Environment

We are subject to a variety of laws and regulations, including but not limited to those of the United States and South Africa, that impose regulatory systems that govern many aspects of our operations, including our research and development activities involving the enrichment of isotopes in South Africa. In addition, these jurisdictions impose trade controls requirements that restrict trade to comply with applicable export controls and economic sanctions laws and requirements, and legal requirements that are intended to curtail bribery and corruption.

There are a number of regulators and treaties that govern and control our business and industry. The two principal ones that control and regulate the manufacturing of isotopes at our isotope enrichment facility in South Africa are the International Atomic Energy Agency (IAEA) and the Nuclear Non-Proliferation Treaty (NPT).

The IAEA is an international organization that seeks to promote the peaceful use of nuclear energy, and to inhibit its use for any military purpose, including nuclear weapons. The IAEA was established as an autonomous organization on 29 July 1957. Though established independently of the United Nations through its own international treaty, the IAEA Statute, the IAEA reports to both the United Nations General Assembly and Security Council. The IAEA statute currently has 173 member states, including South Africa.

The IAEA is authorized to conclude agreements with member states, in terms of which agreements the agency would perform certain functions and the relevant member states would be placed under certain obligations. The IAEA has concluded an extensive suite of agreements with South Africa. These agreements can be viewed on the website of the IAEA (*https://www.iaea.org/resources/legal/country-factsheets*) and include agreements that govern the physical protection of nuclear material, the notification of nuclear accidents, assistance in the case of nuclear accidents, nuclear safety, civil liability, and technical cooperation.

The Treaty on the Non-Proliferation of Nuclear Weapons, commonly known as the Non-Proliferation Treaty or NPT, is an international treaty whose objective is to prevent the spread of nuclear weapons and weapons technology, to promote cooperation in the peaceful uses of nuclear energy, and to further the goal of achieving nuclear disarmament and general and complete disarmament. Our South African subsidiary is registered with the South African Council for the Non-Proliferation of Weapons of Mass Destruction in terms of the Non-Proliferation of Weapons of Mass Destruction Act, 1993. Our registration certificate is valid until September 3, 2023. Representatives from the South African Council for the Non-Proliferation of Weapons of Mass Destruction regularly inspect our facility and conduct tests to monitor the activities that are taking place at our facilities.

In South Africa, government Notice 493 relates to nuclear-related dual-use equipment, materials and software and related technologies which can be used in their entirety or in part for the separation of uranium isotopes. ASP is classified as a dual use technology under the protocols of the IAEA and, as such, is subject to the controls that are implemented under these protocols. These controls comprise requirements that include:

- membership of the IAEA and adherence to its protocols;
- membership of the Nuclear Suppliers Group (NSG) and adherence to its protocols;

- agreement to an “additional protocol” in light of uranium enrichment capabilities;
- local laws that require permits for possession, operation and commercialization and regular reporting;
- ad hoc inspections by the IAEA on 24 hour and in some cases 2 hours pre-warning;
- requirement for proposed patent applications to be approved at ministerial level; and
- cross-border technology transfer to be handled by the respective governments and approved by IAEA.

These regulations place strict limitations on what we can and cannot do. Security measures at our production facility and our offices are stringent. Access to our manufacturing plant is highly controlled. All employees and all visitors to the manufacturing plant are pre-screened by the South African Council for the Non-Proliferation of Weapons of Mass Destruction before being allowed employment or entry into the facility. Some of our suppliers also need to be registered with the South African Council for the Non-Proliferation of Weapons of Mass Destruction. Many of our computer systems are not connected to the external internet and confidential information is secured at a controlled location.

Currently, the production, distribution or sale of Mo-100 is not regulated by a healthcare regulator such as the Food and Drug Administration (FDA) in the USA, Health Canada in Canada, the European Medicines Agency in Europe and similar regulators in other countries. However, products that are produced from Mo-100 (such as Mo-99 and Tc-99m in a linear accelerator or cyclotron) are regulated by healthcare regulators and our customers are required to operate under the licensure of these healthcare regulators. Currently, the production and use of Tc-99m from Mo-100 in a cyclotron is only approved in one country (Canada).

Some of our future isotopes may also be regulated by healthcare regulators such as the Food and Drug Administration (FDA) in the USA, Health Canada in Canada, the European Medicines Agency in Europe and similar regulators in other countries.

U.S. laws restrict the ability of U.S. companies, U.S. citizens and U.S. permanent residents, or U.S. persons, from involvement in certain types of transactions with countries, businesses and individuals that have been targeted by U.S. economic sanctions. For example, U.S. persons are precluded from undertaking virtually any activity of any kind on the part of any U.S. person with regard to any potential or actual transactions involving Cuba, Iran and Sudan without the prior approval of the U.S. Department of Treasury’s Office of Foreign Assets Control, or OFAC. OFAC also administers U.S. sanctions against a lengthy list of entities and individuals, wherever they may be located, that the United States considers to be closely associated with these sanctioned countries or that are considered terrorists or traffickers in either narcotics or weapons of mass destruction. Furthermore, U.S. economic sanctions forbid U.S. persons from circumventing direct U.S. restrictions or from facilitating transactions by non-U.S. persons if those activities are forbidden to U.S. persons. Penalties for violating provisions such as these can include significant civil and criminal fines, imprisonment and loss of tax credits or export privileges.

The Foreign Corrupt Practices Act of 1977, or the FCPA, as amended by the Omnibus Trade and Competitiveness Act of 1988 and the International Anti-Bribery and Fair Competition Act of 1998, makes it a criminal offense for a U.S. corporation or other U.S. domestic concern to make payments, gifts or give anything of value directly or indirectly to foreign officials for the purpose of obtaining or retaining business, or to obtain any other unfair or improper advantage. In addition, the FCPA imposes accounting standards and requirements on publicly traded U.S. corporations and their foreign affiliates, which are intended to prevent the diversion of corporate funds to the payment of bribes and other improper payments, and to prevent the establishment of “off books” slush funds from which such improper payments can be made. We are also subject to laws and regulations covering subject matter similar to that of the FCPA that have been enacted by countries outside of the United States. For example, the Convention on Combating Bribery of Foreign Public Officials in International Business Transactions was signed by the members of the Organization for Economic Cooperation and Development and certain other countries in December 1997. The Convention requires each signatory to enact legislation that prohibits local persons and firms from making payments to foreign officials for the purpose of obtaining business or securing other unfair advantages from foreign governments. Failure to comply with these laws could subject us to, among other things, penalties and legal expenses, which could harm our reputation and have a material adverse effect on our business, financial condition and results of operations.

Compliance with the myriad of export control laws of the various jurisdictions in which we do business is a challenge for any company involved in export activities within the nuclear and defense end markets. We have compliance systems in our U.S. and non-U.S. subsidiaries to identify those products and technologies that are subject to export control regulatory restrictions and, where required, we obtain authorization from relevant regulatory authorities for sales to foreign buyers or for technology transfers to foreign consultants, companies, universities or foreign national employees. We also have a compliance system that is intended to proactively address potential compliance issues including those related to export control, trade sanctions and embargoes, as well as anti-bribery situations, and we are implementing this through such mechanisms as training, formalizing contracting processes, performing diligence on agents and continuing to improve our record-keeping and auditing practices with respect to third-party relationships and otherwise. Thus far, as part of our compliance system, for instance, we have developed a Code of Ethics and Conduct that informs all of our employees of their compliance obligations. Furthermore, we have developed an ethics and conduct training program that all of our employees are required to undertake, as well as other targeted compliance training relevant to their position, such as specific FCPA training for all of our worldwide controllers. Violations of any of the various U.S. or non-U.S. export control laws can result in significant civil or criminal penalties, or even loss of export privileges, as mentioned above. We recognize that an effective compliance program can help protect the reputation and relationship of a regulated company with the regulatory agencies administering these laws and regulations. In the United States, each of the regulatory agencies administering these laws and regulations has a voluntary disclosure program that offers the possibility of significantly reduced penalties, if any are applicable, and we intend to use these programs as part of our overall compliance program, as necessary.

Employees

As of December 31, 2022, we employed four full-time employees. As of March 23, 2023, we employ approximately 31 people on a full-time basis, 27 of whom work at our newly completed plant in South Africa. Of the total employees, 7 are in Research and Development, 15 are in construction and manufacturing and 5 are in general management. None of our employees are subject to collective bargaining agreements. We consider our relationship with our employees to be good.

Facilities

We lease our research and development facility in Pretoria, South Africa under a lease with a term expiring on December 31, 2030. We believe that our existing facilities are adequate to meet our current needs.

Legal Proceedings

We are currently not a party to any material legal proceedings.

Item 1A. Risk Factors

Investing in our common stock involves a high degree of risk. You should carefully consider the risk factors below together with the information contained elsewhere in this Annual Report on Form 10-K, including Part II, Item 8 "Financial Statements and Supplementary Data" and Part II, Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations," and in our other public filings in evaluating our business. Before you decide to invest in our common stock, you should consider carefully the risks described below, together with the other information contained in this Annual Report, including our financial statements and the related notes. We believe the risks described below are the risks that are material to us as of the date of this Annual Report. If any of the following risks actually occur, our business, financial condition, results of operations and future growth prospects could be materially and adversely affected. In these circumstances, the market price of our common stock could decline, and our stockholders may lose all or part of their investment.

Summary of the Material and Other Risks Associated with Our Business

Our business is subject to numerous material and other risks and uncertainties that you should be aware of in evaluating our business. These risks include, but are not limited to, the following:

- We have incurred significant net losses since inception, and we expect to continue to incur significant net losses for the foreseeable future.
- We have a limited operating history, which may make it difficult to evaluate our prospects and likelihood of success.
- Our business is tied directly to the diagnostic medical imaging industry and is dependent on our ability to successfully introduce our Mo-100 and adapt to changing technology and a changing medical practice landscape.
- We currently have no sales, but we expect to be heavily dependent on a few large customers to generate a majority of our revenues for our Mo-100. Our operating results could be adversely affected by a reduction in business with our future significant customers.
- We are early in our research and development efforts for Mo-100 and U-235 using the ASP technology. If we are unable to advance our future isotopes in development, obtain applicable regulatory approval and ultimately commercialize our future isotopes, or experience significant delays in doing so, our business will be materially harmed.
- We depend on our agreements with Klydon, the termination of which could result in the loss of significant rights, which would harm our business.
- Obtaining and maintaining our patent protection depends on compliance with various procedures, document submissions, fee payments and other requirements imposed by governmental patent agencies, and our patent protection could be reduced or eliminated for non-compliance with these requirements.
- There has been no prior public market for our common stock, the stock price of our common stock may be volatile or may decline regardless of our operating performance and you may not be able to resell your shares at or above the initial public offering, or IPO, price.
- If we fail to maintain an effective system of internal control over financial reporting, we may not be able to accurately report our financial results or prevent fraud. As a result, stockholders could lose confidence in our financial and other public reporting, which would harm our business and the trading price of our common stock.
- Our independent registered public accounting firm's report contains an explanatory paragraph that expresses substantial doubt about our ability to continue as a "going concern."

The material and other risks summarized above should be read together with the text of the full risk factors below and in the other information set forth in this Annual Report, including our consolidated financial statements and the related notes, as well as in other documents that we file with the SEC. If any such material and other risks and uncertainties actually occur, our business, prospects, financial condition and results of operations could be materially and adversely affected. The risks summarized above or described in full below are not the only risks that we face. Additional risks and uncertainties not currently known to us, or that we currently deem to be immaterial may also materially adversely affect our business, prospects, financial condition and results of operations.

Risks Related to Our Limited Operating History, Financial Position and Need for Additional Capital

We have a very limited operating history, and we have incurred losses since our inception and anticipate that we will continue to incur significant losses for the foreseeable future. We may never generate any revenue or become profitable or, if we achieve profitability, we may not be able to sustain it.

We were incorporated in September 2021, and we have a very limited operating history upon which you can evaluate our business and prospects. Our operations to date have been primarily focused on acquiring the assets of Molybdos (after participating in and being declared the winner of a competitive auction process under Section 45 of the *South Africa Consumer Protection Act, 2008* for ZAR 11,000,000, which at the then current exchange rate was approximately $734,000 and in-licensing intellectual property rights related to the production of Molybdenum-100 (a non-radioactive isotope we believe may have applications primarily in the medical industry) and Uranium-235 (an isotope of uranium we believe may have application in the clean, efficient and carbon-free energy industry) using the ASP technology, organizing and staffing our company, research and development activities, business planning, raising capital, and providing general and administrative support for these operations. In July 2022, we acquired assets comprising a dormant Silicon-28 aerodynamic separation processing plant from Klydon for ZAR 6,000,000 (which at the then current exchange rate was approximately $364,000), which will be payable to Klydon on the later of 180 days of the acquisition and the date on which the assets generate any revenues of any nature. We have not yet built a functioning Mo-100 or U-235 manufacturing plant or even demonstrated the ability to produce Mo-100 or U-235 using the ASP technology. We have not yet demonstrated an ability to overcome many of the risks and uncertainties frequently encountered by companies in the medical, technology and energy industries, including an ability to obtain applicable regulatory approvals, manufacture any isotopes at commercial scale (or arrange for a third party to do so on our behalf), or conduct sales and marketing activities necessary for successful isotope commercialization. In addition, we have not yet sought any regulatory approval that may be necessary for application of Mo-100 that we may develop using the ASP process in the medical industry. Consequently, any predictions about our future performance may not be as accurate as they would be if we had a history of successfully developing and commercializing isotopes.

Investment in isotope enrichment technology is highly speculative because it entails substantial upfront capital expenditures and significant risk that any potential isotopes will fail to demonstrate adequate utility or effectiveness in the targeted application (or for medical indications, an acceptable safety profile), gain regulatory approval, if applicable, and become commercially viable. We have no products approved for commercial sale and have not generated any revenue to date, and we continue to incur significant research and development and other expenses related to our ongoing operations. As a result, we are not profitable and have incurred losses since our inception in September 2021. For the period from September 13, 2021 (inception) through December 31, 2021, we reported a net loss of $2.6 million. For the year ended December 31, 2022, we reported a net loss of $4.9 million. As of December 31, 2022, we had an accumulated deficit of $7.6 million.

We expect to continue to incur significant losses for the foreseeable future, and we expect these losses to increase as we:

- continue to invest in our research and development activities;
- seek applicable regulatory approvals for any future isotopes that we may successfully develop;
- experience any delays or encounter any issues with any of the above, including but not limited to failed research and development activities, safety issues or other regulatory challenges, the risk of which in each case may be exacerbated by the ongoing COVID-19 pandemic;
- hire additional engineering and production personnel and build our internal resources, including those related to audit, patent, other legal, regulatory and tax-related services associated with maintaining compliance with exchange listing and SEC requirements, director and officer insurance premiums and investor and public relations costs;
- obtain, expand, maintain, enforce and protect our intellectual property portfolio;
- establish a sales, marketing and distribution infrastructure and establish manufacturing capabilities, whether alone or with third parties, to commercialize future isotopes (assuming receipt of applicable regulatory approvals), if any; and
- operate as a public company.

We expect limited commercial activity for our isotopes in the United States during the next two to three years and we anticipate that most of our initial revenues from future sales of our Mo-100 will be derived from countries in Asia and EMEA (Europe, Middle East and Africa). To become and remain profitable, we must succeed in developing and eventually commercializing isotopes that generate significant revenue. This will require us to be successful in a range of challenging activities, including completing research and development activities relating to our ASP technology, obtaining applicable regulatory approval for future isotopes, if any, and manufacturing, marketing and selling any future isotopes (assuming receipt of applicable regulatory approvals). We are only in the preliminary stages of most of these activities. We may never succeed in these activities and, even if we do, may never generate revenues that are significant enough to achieve profitability. Because of the numerous risks and uncertainties associated with chemical isotopes separation, we are unable to accurately predict the timing or amount of increased expenses or when, or if, we will be able to achieve profitability. Even if we do achieve profitability, we may not be able to sustain or increase profitability on a quarterly or annual basis. Our failure to become and remain profitable would depress the value of our company and could impair our ability to raise capital, expand our business, maintain our research and development efforts, diversify our future isotopes or even continue our operations. A decline in the value of our company could also cause you to lose all or part of your investment.

Our future prospects are tied directly to the end markets that use our isotopes including the diagnostic medical imaging industry and depend on our ability to successfully introduce our isotopes and adapt to a changing technology and medical practice landscape.

The field of diagnostic medical imaging is dynamic, with new products, including equipment, software and products, continually being developed and existing products continually being refined. New hardware (scanners), software or agents in a given diagnostic modality may be developed that provide benefits superior to the then-dominant hardware, software and agents in that modality, resulting in commercial displacement of the existing radiotracers. For example, alternate scanners and radiotracers could be introduced. Similarly, changing perceptions about comparative efficacy and safety, as well as changing availability of supply may favor one agent over another or one modality over another. In addition, new or revised appropriate use criteria developed by professional societies, to assist physicians and other health care providers in making appropriate imaging decisions for specific clinical conditions, can and have reduced the frequency of and demand for certain imaging modalities and imaging agents. Technological obsolescence in any of the medical imaging products that would use the Mo-100 that we plan to manufacture could have a material adverse effect on our business, results of operations, financial condition and cash flows.

We may not realize the anticipated benefits of previous acquisitions.

The success of the company will depend in large part on the success of our management in integrating the acquired assets into the company. In October 2021, our subsidiary in South Africa acquired the assets of Molybdos after participating in and being declared the winner of a competitive auction process under Section 45 of the *South Africa Consumer Protection Act, 2008* for ZAR 11,000,000 (which at the then current exchange rate was approximately $734,000), plus value added tax (VAT) levied by the government of South Africa at the rate of 15% and auctioneers' commission at the rate of 10%. We have not yet built a functioning Mo-100 or U-235 manufacturing plant or even demonstrated the ability to produce Mo-100 or U-235 using the assets acquired at the business rescue auction. We will not know whether the assets that we acquired will work according to our expectations until we have completed construction of the Molybdos plant. In July 2022, we acquired assets comprising a dormant Silicon-28 aerodynamic separation processing plant from Klydon located in Pretoria, South Africa for ZAR 6,000,000 (which at the then current exchange rate was approximately $364,000). We intend to explore commercial opportunities for Silicon-28 and other light isotopes that may be produced using these assets. Our failure to achieve the integration of the acquired assets into the company and to commercialize the assets could result in our failure to realize the anticipated benefits of those acquisitions and could impair our results of operations, profitability and financial results.

We currently have no sales, but we expect to be heavily dependent on a few large customers to generate a majority of our revenues. Our operating results could be adversely affected by a reduction in business with our future significant customers.

We currently have no sales. However, we expect to rely on a limited number of customers outside of the United States to purchase any isotopes that we develop using the ASP technology under long-term contracts. Our future key customers may stop ordering our isotopes at any time or may become bankrupt or otherwise unable to pay. The loss of any of our future key customers could result in lower revenues than we anticipate and could harm our business, financial condition or results of operations.

Our independent registered public accounting firm's report contains an explanatory paragraph that expresses substantial doubt about our ability to continue as a "going concern."

We incurred a net loss of $2.6 million for the period from September 13, 2021 (inception) through December 31, 2021 and a net loss of $4.9 million for the year ended December 31, 2022. As of December 31, 2022 and March 31, 2023, we had approximately $2.4 million and $5.2 million in cash, respectively. We have yet to generate any revenues, and we anticipate that our losses will continue for the foreseeable future. We cannot assure you that our plans to commercialize isotopes that we may develop will be successful. These factors, among others, raise substantial doubt about our ability to continue as a going concern. The financial statements contained elsewhere in this report do not include any adjustments that might result from our inability to continue as a going concern. Unless we can begin to generate material revenue or raise capital through equity offerings, we may not be able to remain in business. We cannot assure you that we will raise enough money or generate sufficient sales to meet our future working capital needs.

We will require substantial additional capital to finance our operations, which may not be available on acceptable terms, or at all. Failure to obtain this necessary capital when needed may force us to delay, limit or terminate certain of our product development efforts or other operations.

We expect our expenses to increase substantially in connection with our ongoing and planned activities, particularly as we continue our research and development activities, seek applicable regulatory approvals for any future isotopes that we may successfully develop, and expand our organization by hiring additional personnel. In addition, we expect to incur additional costs associated with operating as a public company.

As of December 31, 2022, our cash was approximately $2.4 million. In March 2023, we received gross proceeds of $5.0 million through the issuance of 3,164,557 shares of our common stock and warrants to purchase up to an aggregate of 3,164,557 shares of our common stock with an exercise price of $1.75 per share. We believe, based on our current operating plan, that our existing cash and cash equivalents, will not be sufficient to fund our operations for at least the next 12 months from the date the financial statements are issued**.** Therefore, we plan seek additional funds through public or private equity or debt financings, third-party funding, marketing and distribution arrangements, as well as other collaborations, strategic alliances and licensing arrangements, or any combination of these approaches.

In any event, we will require substantial additional capital to support our business operations as we pursue additional research and development activities related to our ASP technology and seek applicable regulatory approval of our any future isotopes, and otherwise to support our continuing operations. In addition, we expect to incur significant commercialization expenses related to product sales, marketing, manufacturing and distribution (assuming receipt of applicable regulatory approvals for our future isotopes). Even if we believe we have sufficient capital for our current or future operating plans, we may seek additional capital if market conditions are favorable or if we have specific strategic considerations. Any additional capital raising efforts may divert our management from their day-to-day activities, which may adversely affect our ability to develop and commercialize our future isotopes (assuming receipt of applicable regulatory approvals).

Additionally, as a result of the COVID-19 pandemic and actions taken to slow its spread, the global credit and financial markets have experienced extreme volatility and disruptions, including severely diminished liquidity and credit availability. If the equity and credit markets deteriorate, it may make any necessary debt or equity financing more difficult, more costly or more dilutive. If we do not raise additional capital in sufficient amounts, we may be prevented from pursuing development and commercialization efforts, which will harm our business, operating results and prospects.

We are subject to credit counterparty risk.

The Company maintains cash balances at many financial institutions in multiple geographies. While the majority of cash balances are currently held in US$ at U.S. financial institutions, our cash balances at those institutions may exceed the Federal Deposit Insurance Corporation ("FDIC") insurance limit of $250,000 per depositor, per insured bank for each account ownership category. Our non-US banking counterparties might not have protections offered to their customers that are considered standard in the U.S. and even if such deposit insurances do exist, there is no guarantee that the insurer will honor those insurance policies. Although the Company currently believes that the financial institutions with whom it does business, will be able to fulfill their commitments to the Company, there is no assurance that those institutions will be able to continue to do so. Any credit losses that may occur could have a material adverse effect on our business, results of operations, financial condition and cash flows.

Raising additional capital or acquiring or licensing assets by issuing equity or debt securities may cause dilution to our stockholders, and raising funds through lending and licensing arrangements may restrict our operations or require us to relinquish proprietary rights.

We plan to seek additional capital through a combination of public and private equity offerings, debt financings, strategic partnerships and alliances and licensing arrangements. To the extent that we raise additional capital through the sale of equity or convertible debt securities, your ownership interest will be diluted, and the terms may include liquidation or other preferences that adversely affect your rights as a stockholder. The incurrence of indebtedness would result in increased fixed payment obligations and could involve certain restrictive covenants, such as limitations on our ability to incur additional debt, limitations on our ability to acquire or license intellectual property rights and other operating restrictions that could adversely impact our ability to conduct our business. If we raise additional capital through future collaborations, strategic alliances or third-party licensing arrangements, we may have to relinquish valuable rights to our intellectual property, future revenue streams, research programs or future isotopes, or grant licenses on terms that may not be favorable to us.

If we are unable to raise additional capital when needed, we may be required to delay, limit, reduce or terminate our product development or future commercialization efforts, or grant rights to develop and market our future isotopes (assuming receipt of applicable regulatory approvals for our future isotopes) that we would otherwise develop and market ourselves.

Risks Related to the Development and Commercialization of Our Future Isotopes

We are early in our research and development efforts for isotopes using the ASP technology. If we are unable to advance our future isotopes in development, obtain applicable regulatory approval and ultimately commercialize our future isotopes, or experience significant delays in doing so, our business will be materially harmed.

We are early in our research and development efforts and have not yet produced even experimental samples of any finished isotope. It is possible that the research and development, proof-of-concept, construction of a plant and commercialization will take longer than anticipated due to unexpected delays.

We also plan to begin researching the enrichment of uranium, which is a chemical element we believe may have application in the clean, efficient and carbon-free energy industry, using the ASP technology. We are in the planning stage of research and development activities for enriched uranium. If we are unable to advance our future isotopes in development, obtain applicable regulatory approval and ultimately commercialize our future isotopes (assuming receipt of applicable regulatory approvals), or experience significant delays in doing so, our business will be materially harmed.

Our ability to generate product revenues will depend heavily on the success of our research and development activities, receipt of applicable regulatory approvals, and eventual commercialization of our future isotopes (assuming receipt of applicable regulatory approvals and compliance with all applicable regulatory authorities).

The success of our business, including our ability to finance our company and generate any revenue in the future, will primarily depend on the successful development, regulatory approval and commercialization of our currently planned future isotopes, which may never occur.

We will have to be successful in a range of challenging activities, including completing research and development activities relating to our ASP technology, obtaining applicable regulatory approval for future isotopes, if any, and manufacturing, marketing and selling any future isotopes (assuming receipt of applicable regulatory approvals). We are only in the preliminary stages of most of these activities. If we are unable to succeed in these activities, we may not be able to generate sufficient revenue to continue our business.

We rely on a limited number of suppliers to provide us components and a material interruption in supply could prevent or limit our ability to execute our strategic plan and development programs in the expected timeframe.

We depend upon a limited number of third-party suppliers located for certain components required to construct the centrifuges and other equipment for the enrichment plant that is being constructed in South Africa. To date, we have been able to obtain the required components for our centrifuges without any significant delays or interruptions, except for certain delays related to COVID-19. If we lose any of these suppliers, we may be required to find and enter into supply arrangements with one or more replacement suppliers. Obtaining alternative sources of supply could involve significant delays and other costs, and these supply sources may not be available to us on reasonable terms or at all. Any disruption of supplies could delay completion of the enrichment plant in South Africa, which could adversely affect our ability to execute our strategic plan and development programs in the expected timeframe.

Our business, financial and operating performance could be adversely affected by epidemics and other health related issues including but not limited to the coronavirus disease 2019 ("COVID-19") pandemic.

The global outbreak of COVID-19 has negatively affected global economies, disrupted supply chains, and has resulted in significant travel, transport, and other restrictions. The COVID-19 outbreak has disrupted the supply chains and our day-to-day operations (and the operations of our suppliers and contractors (including Klydon), which could materially adversely affect our operations). In this regard, global supply chains and the timely availability of components imported to South Africa from the United States, countries in Europe or other nations could be materially disrupted by quarantines, slowdowns or shutdowns, border closings, and travel restrictions resulting from the global COVID-19 pandemic or other global pandemic or health crises. Further, impacts of COVID-19 infections and other COVID-19 pandemic related impacts on our management and workforce, or our suppliers and contractors (including Klydon), could adversely impact our business. While we have taken steps to protect our workforce and carry-on operations, we may not be able to mitigate all of the potential impacts. We anticipate increased costs related to, or resulting from, the COVID-19 pandemic due to, among other things, delays in supplier deliveries, impacts of travel restrictions, site access and quarantine requirements.

In the event that the COVID-19 pandemic prevents our employees or our contractors from working in person at our facility in South Africa or our suppliers are unable to provide goods and services on the schedule we anticipated, the impacts on our schedule and costs could be material. The ultimate impact of the COVID-19 pandemic on our operations, including our ability to execute our strategic plan and development programs in the expected timeframe, remains uncertain and will depend on future pandemic-related developments, including the duration of the pandemic and any potential subsequent variants of COVID-19 and related government actions to prevent and manage disease spread, all of which are uncertain and cannot be predicted. The long-term impacts of the COVID-19 pandemic on us, our contractors and suppliers that could impact our business are also difficult to predict but could adversely affect our business, results of operations, and prospects.

Development activities at our facility in South Africa could be disrupted for a variety of reasons, which could prevent us from completing our development activities.

A disruption in development activities at our facility in South Africa could have a material adverse effect on our business. Disruptions could occur for many reasons, including power outages, fire, natural disasters, weather, unplanned maintenance or other manufacturing problems, public health crises (including, but not limited to, the COVID-19 pandemic), disease, strikes or other labor unrest, transportation interruption, government regulation, political unrest or terrorism. Alternative facilities with sufficient capacity or capabilities may not be available, may cost substantially more or may take a significant time to start production, each of which could negatively affect our business and financial performance. South Africa struggles with limited electricity supply and regions of the country regularly undergo load-shedding, during which electricity is not available. This uncertain supply of electricity could impact our ability to operate and produce commercial products and could negatively affect the financial position of the Company.

Risks associated with the in-licensing of the ASP technology for development of isotopes could cause substantial delays in the development of our future isotopes.

Prior to October 2021, as a company we had no involvement with or control over the research and development of the ASP technology. We have relied and continue to rely on Klydon to conduct such research and development in accordance with the applicable legal, regulatory and scientific standards prior to the in-licensing of the ASP technology for development of isotopes. If the research and development processes or the results of the development programs prior to the in-licensing of the ASP technology for development of isotopes prove to be unreliable, this could result in increased costs and delays in the development of our future isotopes, which could adversely affect any future revenue from these future isotopes (assuming receipt of applicable regulatory approvals).

Regulatory approval for production and distribution of radiopharmaceuticals used for medical imaging and therapeutic treatments may involve a lengthy and expensive process with an uncertain outcome.

Currently, the sale or use of Mo-100 is not regulated by a healthcare regulator, such as the FDA, European Medicines Agency (EMA) or comparable foreign regulatory authorities. However, products such as Mo-99 and Tc-99m that are produced from Mo-100 in a cyclotron or a linear accelerator are regulated by healthcare regulators. We expect radiopharmacies, hospitals, clinics and others in the medical community to produce the widely used medical radioisotope technetium-99m (Tc-99m) from the Mo-100 that we may produce using our ASP technology. Tc-99m is a diagnostic agent that is used by health care professionals with FDA-approved imaging devices to detect potential diseases like coronary artery disease and cancer, as well as evaluate lung, liver, kidney and brain function. When used with the appropriate diagnostic scanner device, such as a SPECT imaging system, the Tc-99m emits signals that are captured and produces an image of internal organs to detect various medical problems and contribute to diagnosis and treatment decisions. Our future customers who may use Mo-100 to produce radiopharmaceuticals will likely require regulatory approval for their products. To date, only one healthcare regulator (Canada) has approved the use of Tc-99m produced from Mo-100 via a cyclotron. Obtaining regulatory approval is expensive and can take many years to complete, and its outcome is inherently uncertain. Our customers' regulatory approval process may not be conducted as planned or completed on schedule, if at all, and failure can occur at any time during the process.

In the future, we may need to obtain approval from the FDA, EMA or comparable foreign regulatory authorities prior to the sale of Mo-100 that we may produce using our ASP technology for use in medical imaging and therapeutic treatments. If we require FDA, EMA or other comparable foreign regulatory authorities to approve the sale of Mo-100 that we may produce using our ASP technology for medical imaging and therapeutic treatments, we must demonstrate the safety and utility or efficacy of our Mo-100. Obtaining regulatory approval is expensive and can take many years to complete, and its outcome is inherently uncertain. Our regulatory approval process may not be conducted as planned or completed on schedule, if at all, and failure can occur at any time during the process.

Other isotopes that we intend to produce in the future may also require approvals from healthcare regulators such as FDA, EMA or comparable foreign regulatory authorities.

Our success depends on our future customers' ability to successfully commercialize products that are produced from our isotopes.

Our customers operate in a competitive environment. If our customers are unable to successfully commercialize products that they produce from our isotopes, our business will be negatively impacted. Our customers may fail for a number of reasons, including but not limited to pricing pressure from competing products and failure to gain regulatory approval for the production of their products from healthcare regulators.

Our success depends on our ability to adapt to a rapidly changing competitive environment in the nuclear industry.

The nuclear industry in general, and the nuclear fuel industry in particular, is in a period of significant change, which could significantly transform the competitive landscape we face. The uranium and isotope enrichment sector is competitive. Changes in the competitive landscape may adversely affect pricing trends, change customer spending patterns, or create uncertainty. To address these changes, we may seek to adjust our cost structure and efficiency of operations and evaluate opportunities to grow our business organically or through acquisitions and other strategic transactions. We are actively considering, and expect to consider from time to time in the future, potential strategic transactions, which could involve, without limitation, changes in our capital structure, acquisitions and/or dispositions of businesses or assets, joint ventures or investments in businesses, products or technologies.

In connection with any such transaction, we may seek additional debt or equity financing, contribute or dispose of assets, assume additional indebtedness, or partner with other parties to consummate a transaction. Any such transaction may not result in the intended benefits and could involve significant commitments of our financial and other resources. Legal and consulting costs incurred in connection with debt or equity financing transactions in development are deferred and subject to immediate expensing if such a transaction becomes less likely to occur. If the actions we take in response to industry changes are not successful, our business, results of operations and financial condition may be adversely affected.

We may explore strategic collaborations that may never materialize or may fail.

We intend to accelerate the development of our enriched uranium program by selectively collaborating with energy companies in the United States. We intend to retain significant technology, economic and commercial rights to our programs in key geographic areas that are core to our long-term strategy. As a result, we intend to periodically explore a variety of possible additional strategic collaborations in an effort to gain access to additional resources. At the current time, we cannot predict what form such a strategic collaboration might take. We are likely to face significant competition in seeking appropriate strategic collaborators, and strategic collaborations can be complicated and time-consuming to negotiate and document. We may not be able to negotiate strategic collaborations on acceptable terms, or at all. We are unable to predict when, if ever, we will enter into any additional strategic collaborations because of the numerous risks and uncertainties associated with establishing them.

If the market opportunities for our future isotopes are smaller than we estimate (even assuming receipt of any required regulatory approval), our business may suffer.

We are currently focused on producing isotopes using our ASP technology to meet critical needs in society. We also plan to research the production of enriched uranium to meet the future needs of developers of U.S. advanced reactor technologies requiring HALEU. Our projections of the potential markets are based on estimates that have been derived from a variety of sources, including scientific literature and market research, and which may prove to be incorrect. We must be able to successfully acquire a significant market share in our potential markets to achieve profitability and growth. Customers may become difficult to gain access to, which would adversely affect our results of operations and our business.

We face substantial competition, which may result in others discovering, developing or commercializing isotopes before or more successfully than us.

The development and commercialization of radioisotopes and chemical elements is highly competitive. We face competition with respect to all the isotopes that we may produce using our ASP technology from established biotechnology and nuclear medicine technology companies and will face competition with respect to enriched uranium that we may seek to develop or commercialize in the future from innovative technology and energy companies. There are a number of large biotechnology and nuclear medicine technology companies that currently market and sell radioisotopes to radiopharmacies, hospitals, clinics and others in the medical community (Mo-99 is the active ingredient for Tc-99m-based radiopharmaceuticals used in nuclear medicine procedures). There are also a number of technology and energy companies that are currently seeking to develop HALEU. Potential competitors also include academic institutions, government agencies and other public and private research organizations that conduct research, seek patent protection and establish collaborative arrangements for research, development, manufacturing and commercialization.

More established companies may have a competitive advantage over us due to their greater size, resources and institutional experience. In particular, these companies have greater experience and expertise in securing reimbursement, government contracts, relationships with key opinion leaders, obtaining and maintaining regulatory approvals and distribution relationships to market products. These companies also have significantly greater research and marketing capabilities than we do. If we are not able to compete effectively against existing and potential competitors, our business and financial condition may be harmed.

As a result of these factors, our competitors may complete development of isotopes before we are able to, which may limit our ability to develop or commercialize our future isotopes. Our competitors may also develop radioisotopes or technologies that are safer, more effective, more widely accepted and cheaper than ours, and may also be more successful than us in manufacturing and marketing their isotopes. These appreciable advantages could render our future isotopes obsolete or non-competitive before we can recover the expenses of their development and commercialization.

Mergers and acquisitions in the technology and energy industries may result in even more resources being concentrated among a smaller number of our competitors. Smaller and other early-stage companies may also prove to be significant competitors, particularly through collaborative arrangements with large and established companies. These third parties compete with us in recruiting and retaining qualified scientific, management and commercial personnel, as well as in acquiring technologies complementary to, or necessary for, our programs.

Even if the products that we or our customers may produce using the ASP technology receives regulatory approval, it may fail to achieve market acceptance by radiopharmacies, hospitals, clinics or others in the medical community necessary for commercial success.

Even if the Mo-100 that we may produce using the ASP technology, or Tc-99m or Mo-99 that we expect our future customers to produce using the Mo-100 that we plan to offer, receives regulatory approval, the isotopes may fail to gain sufficient market acceptance by radiopharmacies, hospitals, clinics and others in the medical community. If it does not achieve an adequate level of acceptance, we may not generate significant product revenue and may not become profitable. The degree of market acceptance of Mo-100 that we may produce using the ASP technology, or the Tc-99m or Mo-99 that our future customers may produce, will depend on a number of factors, including but not limited to:

- the potential advantages compared to alternative radioisotopes;
- the timing of market introduction of the product as well as competitive products;
- effectiveness of sales and marketing efforts;
- the strength of our relationships with radiopharmacies, hospitals, clinics and others in the medical community;
- the cost in relation to alternative radioisotopes;
- our ability to offer Mo-100 that we may produce using the ASP technology for sale at competitive prices;
- the convenience and ease of use compared to alternative radioisotopes;
- the willingness of radiopharmacies, hospitals, clinics and others in the medical community to try an innovative radioisotope; and
- the strength of marketing and distribution support.

Our efforts to educate radiopharmacies, hospitals, clinics and others in the medical community on the benefits of Mo-100 that we may produce using the ASP technology may require significant resources and may never be successful.

Because we expect sales of Mo-100 that we may produce using the ASP technology (assuming receipt of applicable regulatory approvals for commercial sale) to generate substantially all of our revenues for the foreseeable future, the failure of Mo-100 that we may produce using the ASP technology (assuming receipt of applicable regulatory approvals for commercial sale) to find market acceptance would harm our business and could require us to seek additional financing.

We currently have no marketing and sales organization and have no experience as a company in commercializing products, and we may have to invest significant resources to develop these capabilities. If we are unable to establish marketing and sales capabilities or enter into agreements with third parties to market and sell our products, we may not be able to generate product revenue.

We have no internal sales, marketing or distribution capabilities, nor have we commercialized a product. If the isotopes that we may produce using our ASP technology gains market acceptance and our customers receive regulatory approval for the isotopes they produce, we must build a marketing and sales organization with technical expertise and supporting distribution capabilities to commercialize such product in the markets that we target, which will be expensive and time-consuming, or collaborate with third parties that have direct sales forces and established distribution systems, either to augment our own sales force and distribution systems or in lieu of our own sales force and distribution systems. We currently plan to independently commercialize the isotopes that we may produce using our ASP technology (assuming receipt of applicable regulatory approvals) in the United States by establishing a focused sales force and marketing infrastructure. We may opportunistically seek additional strategic collaborations to maximize the commercial opportunities for our medical isotopes business outside of the United States. We have no prior experience as a company in the marketing, sale and distribution of isotopes and there are significant risks involved in building and managing a sales organization, including our ability to hire, retain and incentivize qualified individuals, generate sufficient sales leads, provide adequate training to sales and marketing personnel and effectively manage a geographically dispersed sales and marketing team. Any failure or delay in the development of our internal sales, marketing and distribution capabilities would adversely impact the commercialization of these products. We may not be able to enter into collaborations or hire consultants or external service providers to assist us in sales, marketing and distribution functions on acceptable financial terms, or at all. In addition, our product revenues and our profitability, if any, may be lower if we rely on third parties for these functions than if we were to market, sell and distribute any products that we develop ourselves. We likely will have little control over such third parties, and any of them may fail to devote the necessary resources and attention to sell and market our products effectively. If we are not successful in commercializing our isotopes, either on our own or through arrangements with one or more third parties, we may not be able to generate any future product revenue and we would incur significant additional losses.

Obtaining regulatory approval for either the Mo-100 that we may produce using the ASP technology, or the Tc-99m or Mo-99 that our future customers may produce using the Mo-100 that we plan to offer, in one jurisdiction does not mean that we or they will be successful in obtaining regulatory approval of such future products in other jurisdictions.

Currently, the production and distribution of Mo-100 does not require any regulatory licenses from healthcare regulators. Healthcare regulators frequently change such requirements, and it is possible that in the future Mo-100 may be regulated as a healthcare product. Obtaining such regulatory licenses, if required, may be a timely and costly process and could materially impact our ability to commercialize the Mo-100 that we plan to offer. Obtaining regulatory approval of the Mo-100 that we may produce using the ASP technology in one jurisdiction does not guarantee that we will be able to obtain regulatory approval in any other jurisdiction. For example, even if the FDA grants regulatory approval of the Mo-100 that we may produce using the ASP technology, comparable regulatory authorities in foreign jurisdictions must also approve the manufacturing, marketing and promotion and reimbursement of such future product in those countries. However, a failure or delay in obtaining regulatory approval in one jurisdiction may have a negative effect on the regulatory approval process in others. Approval procedures vary among jurisdictions and can involve requirements and administrative review periods different from those in the United States.

Obtaining foreign regulatory approvals and establishing and maintaining compliance with foreign regulatory requirements could result in significant delays, difficulties and costs for us and could delay or prevent the introduction of the Mo-100 that we may produce using the ASP technology. Products such as Tc-99m and Mo-99 that may be produced by our future customers using the Mo-100 that we plan to offer will likely require regulatory licenses in most regions. Healthcare regulators frequently change such requirements and it is unclear what each healthcare regulator will require. To date, only one region (Canada) has approved the use of Tc-99m that has been produced from Mo-100 in a cyclotron. Obtaining such regulatory licenses, if required, may be a timely and costly process and could materially impact the ability of our future customers to operate and use the Mo-100 that we plan to offer. Obtaining regulatory approval in one jurisdiction does not guarantee that we or they will be able to obtain regulatory approval in any other jurisdiction.

If we or any future collaborator fail to comply with the regulatory requirements in international markets or fail to receive applicable marketing approvals, our target market will be reduced and our ability to realize the full market potential of the Mo-100 that we may produce using the ASP technology will be harmed.

Product liability lawsuits against us could cause us to incur substantial liabilities and could limit commercialization of any isotopes that we may develop.

We face an inherent risk of product liability exposure if we commercialize any isotopes that we may develop. If we cannot successfully defend ourselves against claims that any such isotopes caused injuries, we could incur substantial liabilities. Regardless of merit or eventual outcome, liability claims may result in:

- decreased demand for any isotopes that we may develop;
- loss of revenue;
- substantial monetary awards to patients;
- significant time and costs to defend the related litigation;
- a diversion of management's time and our resources;
- initiation of investigations by regulators;
- the inability to commercialize any isotopes that we may develop;
- a decline in our share price.

Any product liability insurance coverage that we obtain and maintain may not be adequate to cover all liabilities that we may incur. We anticipate that we will need to increase our insurance coverage each time we commence a clinical trial and if we successfully commercialize any isotopes. Insurance coverage is increasingly expensive. We may not be able to obtain or maintain insurance coverage at a reasonable cost or in an amount adequate to satisfy any liability that may arise.

Risks Related to Regulatory Compliance

Our business is and could become subject to a wide variety of extensive and evolving laws and regulations. Failure to comply with such laws and regulations and failure to obtain licenses, approvals and permits that may be required to execute on our strategy and develop our company's business could have a material adverse effect on our business.

We are subject to a wide variety of laws and regulations relating to various aspects of our business, including with respect to the development of the ASP technology and our future isotopes, employment and labor, health care, tax, privacy and data security, health and safety, and environmental issues. Laws and regulations at the South African and foreign, federal, state and local levels frequently change, especially in relation to new and emerging industries, and we cannot always reasonably predict the impact of, or the ultimate cost of compliance with, current or future regulatory or administrative changes. In South Africa, our Mo-100 enrichment facility is heavily regulated. South Africa is a signatory to the International Atomic Energy Agency ("IAEA") conventions and has adopted safety standards from the IAEA. The design, construction and operation of the isotope enrichment plants are highly regulated and require government licenses, approvals and permits, and may be subject to the imposition of conditions. In some cases, these licenses, approvals and permits entail periodic review and inspections. While we and Klydon have received all licenses, approvals and permits required to build and operate our isotope enrichment facilities in South Africa, we cannot predict whether the conditions associated with such licenses, approvals and permits will be maintained. For example, each of Klydon and ASP Isotopes South Africa (Proprietary) Limited has received from the South African Council for The Non-Proliferation of Weapons of Mass Destruction (1) a registration certificate (which are valid for two years from the date of issuance) and (2) a Manufacturing and Services Permit. The permits provide that the Non-Proliferation Secretariat will conduct at least two industry visits in June and November (or as arranged) of every year. Each of the permits includes numerous conditions, including, for example, the obligation to keep the Council updated or informed on all separation projects at all times and at least through biannual declarations, which must be done through correspondence to the Council at the end of April and September every year. The permit issued to ASP Isotopes South Africa (Proprietary) Limited includes additional specific information requirements related to (i) the progress on the design and construction of the Mo-100 separation plant, (ii) the progress on the manufacturing of Molybdenum separation elements, and (iii) the commissioning of the plant. Each of the permits further provides that (i) any potential export of controlled goods and technology should be requested at an early stage through a Provisional Export Guidance Request, (ii) all isotope separation applications remain controlled regardless of the isotope atomic mass and will be dealt with on a case-by-case basis, and (iii) any ultimate transfer of these controlled goods and technology will be subject to the issuance of a permit by the Council as required in terms of the Non-Proliferation Act and related Government Notices and Regulations.

In addition, we cannot assure you that we will be able to obtain, on a timely basis or at all, any additional licenses, approvals and permits that may be required to execute on our strategy and develop our company's business, including any such licenses, approvals and permits that may be required to introduce isotopes produced using ASP technology into the market and to begin the enrichment of uranium to demonstrate our capability to produce HALEU using the ASP technology.

Changes in law or the imposition of new or additional regulations or permit requirements that impact our business could negatively impact our performance in various ways, including by limiting our ability to collaborate with partners or customers or by increasing our costs and the time necessary to obtain required authorization. We monitor new developments and devote a significant amount of management's time and external resources to compliance with these laws and regulations. We cannot assure you, however, that we are and will remain in compliance with all such requirements and, even when we believe we are in compliance, a regulatory agency may determine that we are not. In addition, we cannot assure you that we will be able to obtain all licenses, approvals and permits that may be required to execute on our strategy and develop our company's business as currently contemplated. Failure by us, our employees, affiliates, partners or others with whom we work to comply with applicable laws and regulations or to obtain or comply with necessary licenses, approvals and permits could result in administrative, civil, commercial or criminal liabilities, including suspension or debarment from government contracts or suspension of our export/import privileges. Failure by us, our employees, affiliates, partners or others with whom we work to comply with the permits issued to us by the South African Council for The Non-Proliferation of Weapons of Mass Destruction could result in disruption of our development activities at our facility in South Africa, which could prevent us from completing our development activities.

If technology developed for the purposes of enriching isotopes can be applied to the creation or development of weapons-grade materials, then our technology may be considered "dual use" technology and be subject to limitations on public disclosure or export.

Our research and development of isotope enrichment is dedicated not only to producing isotopes for use in nuclear medical diagnostic procedures and concentrating uranium in the isotope uranium-235 for use in nuclear energy, but also to safeguarding any information with broad, dual-use potential that could be inappropriately applied. Enrichment is among the most sensitive nuclear technologies because it can produce weapon-grade materials. The ASP technology may be considered dual use and could be subject to export control, for example, under the Wassenaar Arrangement.

Risks Related to Our Intellectual Property

Our intellectual property is not protected through patents or formal copyright registration. As a result, we do not have the full benefit of patent or copyright laws to prevent others from replicating the ASP technology.

Neither we nor Klydon have yet protected our respective intellectual property rights through patents or formal copyright registration, and neither we nor Klydon currently have any patent applications pending. To date, we and Klydon have relied exclusively on trade secrets and other intellectual property laws, non-disclosure agreements with our respective employees, consultants, vendors, potential customers and other relevant persons and other measures to protect our intellectual property, and intend to continue to rely on these and other means. As we intend to transition into the commercialization of Mo-100, we envision our intellectual property and its security becoming more vital to our future. Until we protect our intellectual property through patent, trademarks and registered copyrights, we may not be able to protect our intellectual property and trade secrets or prevent others from independently developing substantially equivalent proprietary information and techniques or from otherwise gaining access to our intellectual property or trade secrets. In such an instance, our competitors could produce products that are nearly identical to ours, resulting in us selling less products or generating less revenue from our sales.

We may be unable to adequately protect our intellectual property and proprietary rights and prevent others from making unauthorized use of our products and technology.

Our success and competitiveness depend, in significant part, on our ability to protect our intellectual property rights, including the ASP technology and certain other practices, tools, technologies and technical expertise we utilize in designing, developing, implementing and maintaining processes used in the development of our future isotopes. To date, we and Klydon have relied exclusively on trade secrets and other intellectual property laws, non-disclosure agreements with our respective employees, consultants, vendors, potential customers and other relevant persons and other measures to protect our intellectual property, and intend to continue to rely on these and other means.

For strategic reasons, neither we nor Klydon have yet protected our intellectual property by filing patent applications related to our technology, inventions and improvements. Even if we or Klydon filed patent applications and patents were granted, we cannot assure you we would be fully protected against third parties as those patents may not be sufficiently broad in their coverage, may not be economically significant, or may not provide us with any competitive advantage. Competitors may be able to design around any patents and develop isotope production techniques comparable or superior to the ASP technology. Furthermore, the filing of a patent would entail the disclosure of our know-how, and breaches of patent rights related to a wrongful use of this know-how would be difficult to enforce in the international landscape. We believe that our intellectual property strategy differs significantly from the strategies of others involved in the medical isotope industry, many of whom have extensive patent portfolios and rely heavily on intellectual property registrations to enforce their intellectual property rights. As a result of this discrepancy in strategy, we may be at a competitive disadvantage with respect to the strength of our intellectual property protection. Unlike others involved in the medical isotope industry, who generally have patents providing exclusive control over their innovations, we have no recourse against any entity that independently creates the same technology as ours or legitimately reverse-engineers our technology.

We generally enter into non-disclosure agreements with our employees, consultants and other parties with whom we have strategic relationships and business alliances. We cannot, however, assure you that these agreements will be effective in controlling access to and distribution of our technology and proprietary information. Since we do not protect our intellectual property by filing patent applications, we rely on our personnel to protect our trade secrets, know-how and other proprietary information to a greater degree than we would if we had patent protection for our intellectual property. In any jurisdiction in which our research and development is not protected by similar agreements, there is no protection against the manufacture and marketing of identical or comparable research and development by third parties, who are generally free to use, independently develop, and sell our developments and technologies without paying license or royalty fees. Furthermore, our former employees may perform work for our competitors and use our know-how in performing this work. In the event we scale our business by hiring additional personnel and entering into contracts with third parties, the risks associated with breaches of non-disclosure agreements, confidentiality agreements and other agreements pertaining to our technology and proprietary information will increase, and such breaches could have an adverse effect on our business and competitive position.

We may come to believe that third parties are infringing on, or otherwise violating, our intellectual property or other proprietary rights. To prevent infringement or unauthorized use, we may need to file infringement and/or misappropriation suits, which are expensive and time-consuming, could result in meritorious counterclaims against us and would distract management's attention. In addition, in an infringement or misappropriation proceeding, a court may decide that one or more of our intellectual property rights is invalid, unenforceable, or both, in which case third parties may be able to use our technology without paying license fees or royalties. If we are unable to protect our intellectual property and proprietary rights, we may be unable to prevent competitors from using our own inventions and intellectual property to compete against us, and our business may be harmed.

We depend on intellectual property licensed from Klydon, the termination of which could result in the loss of significant rights, which would harm our business.

We are dependent on technology, know-how, and proprietary materials licensed from Klydon. We have an exclusive license from Klydon to use, develop, modify, improve, subcontract and sublicense certain intellectual property rights relating to the ASP technology for the production, distribution, marketing and sale of all isotopes produced using the ASP technology (the "Klydon license agreement"). The Klydon license agreement is royalty-free, has a term of 999 years, and the license is worldwide for the development of the ASP technology and the distribution, marketing and sale of isotopes. Future production of isotopes is limited to member countries of the Nuclear Suppliers Group. Klydon has the right to terminate the exclusivity of the Klydon license agreement in the event that the licensee ceases to carry on activities related to isotope enrichment for a period longer than 24 consecutive months. Any termination of exclusivity under the Klydon license agreement will result in the loss of significant rights and will restrict our ability to develop and commercialize our planned isotopes. If we or Klydon fails to adequately protect this intellectual property, our ability to commercialize the isotopes, such as Mo-100 or uranium, that we may produce using ASP technology could suffer.

In addition, agreements under which we license intellectual property or technology to or from third parties may be complex, and certain provisions in such agreements may be susceptible to multiple interpretations. The resolution of any contract interpretation disagreement that may arise could narrow what we believe to be the scope of our rights to the relevant intellectual property or technology or increase what we believe to be our financial or other obligations under the relevant agreement, either of which could have a material adverse effect on our business, financial condition, results of operations and prospects. Moreover, if disputes over intellectual property that we have licensed prevent or impair our ability to maintain our current licensing arrangements on commercially acceptable terms, we may be unable to successfully develop and commercialize the affected future isotopes. Our business also would suffer if our licensor fails to abide by the terms of the license, or if we are unable to enter into necessary licenses on acceptable terms. Moreover, our licensor may own or control intellectual property that has not been licensed to us and, as a result, we may be subject to claims, regardless of their merit, that we are infringing or otherwise violating the licensor's rights.

Licensing of intellectual property is of critical importance to our business and involves complex legal, business and scientific issues and is complicated by the rapid pace of scientific discovery in our industry. Disputes may also arise between us and our licensors regarding intellectual property subject to a license agreement, including those relating to:

- the scope of rights granted under the license agreement and other interpretation-related issues;
- whether and the extent to which our technology and processes infringe on intellectual property of the licensor that is not subject to the license agreement;
- our right to sublicense rights to third parties under collaborative development relationships;
- whether we are complying with our diligence obligations with respect to the use of the licensed technology in relation to our development and commercialization of our future isotopes, and what activities satisfy those diligence obligations;
- the priority of invention of patented technology;
- the amount and timing of payments owed under license agreements; and
- the allocation of ownership of inventions and know-how resulting from the joint creation or use of intellectual property by our licensor and by us and our partners.

If disputes over intellectual property that we have licensed prevent or impair our ability to maintain our current licensing arrangements on acceptable terms, we may be unable to successfully develop and commercialize the affected future isotopes. We are generally also subject to all of the same risks with respect to protection of intellectual property that we license as we are for intellectual property that we own, which are described below. If we or our licensor fail to adequately protect this intellectual property, our ability to commercialize our future isotopes could suffer.

We have received a letter asserting that the license for the ASP technology granted to us from Klydon, which is critical to our business, may be invalid because these rights were already granted to a third party, Radfarma.

On October 25, 2022, we received a letter (the "NMS Letter") from a law firm acting on behalf of Norsk Medisinsk Syklotronsenter AS ("NMS"), asserting, among other things, that the grant of a license to the ASP technology to us by Klydon violates a pre-existing exclusive sub-license to the ASP technology granted to Radfarma. The NMS Letter makes reference to: (1) a license agreement entered into on October 25, 2013 by Klydon and API Labs Pharmaceuticals (Proprietary) Limited ("API Labs") to license the ASP technology for enriching certain isotopes of the element Molybdenum ("2013 API Labs License"); and (2) an exclusive sub-license to the ASP technology granted on October 1, 2019 to Radfarma, as licensee, by API Labs and SaPhotonica Limited ("SaPhotonica"), as licensors (the "2019 Radfarma Sub-License"). The NMS Letter states that Radfarma is a joint venture that is 45% owned by NMS and 45% owned by SaPhotonica. The NMS Letter also states that Klydon, SaPhotonica and ASP Isotopes Inc. are under common control by Dr. Hendrik Strydom and Einar Ronander.

The NMS Letter asserts, among other things, that the grant of a license to the ASP technology to us by Klydon (pursuant to license agreements entered into subsequent to the Radfarma Sub-License) violates a covenant in the 2019 Radfarma Sub-License that the licensors shall not be entitled, directly or indirectly, to use, grant or otherwise give the rights, or any similar rights, which were granted to Radfarma under the 2019 Radfarma Sub-License to any other person for use in the territory. "Territory" is defined in the 2019 Radfarma Sub-License as "the Kingdom of Norway for the construction of the 20-kilogram capacity plants; and means the international market where distribution agreements can be produced." The NMS Letter asserts that while Klydon purported to give to us a license to market the ASP technology globally, these rights were already granted to Radfarma.

The NMS Letter includes a request for us to enter into discussions and an agreement with NMS based on terms proposed in previous correspondence from NMS which outlined a future collaboration on technology and product development. The NMS Letter does not include a threat of litigation against us or any parties to the 2013 API Labs License or 2019 Radfarma Sub-License. However, if the licensed rights granted to us are found to be invalid or unenforceable (in whole or in part), or if our exclusive license agreement with Klydon is terminated or Klydon, as licensor, fails to abide by the terms of our exclusive license agreement, our ability to commercialize our future isotopes would suffer and our business, results of operations and financial condition may be adversely affected.

Our license for the ASP technology with Klydon may be found to infringe third party intellectual property rights.

Third parties may in the future assert claims or initiate litigation related to their intellectual property rights in technology that is important to us, including the ASP technology. For example, on October 25, 2022, we received a letter (the "NMS Letter") from a law firm acting on behalf of Norsk medisinsk syklotronsenter AS ("NMS"), asserting, among other things, that the grant of a license to the ASP technology to us by Klydon violates a pre-existing exclusive sub-license to the ASP technology granted to Radfarma, as more fully described in the risk factor above. The asserted claims, arbitration and/or litigation could include claims against us, our licensor (Klydon), or Klydon's present or former sub-licensors alleging infringement of intellectual property rights with respect to the ASP technology on which our company relies. Regardless of the merit of the claims, they could be time consuming, resulting in costly arbitration or litigation and diversion of technical and management personnel, or require us to develop non-infringing technology or enter into license agreements. We cannot assure you that licenses will be available on acceptable terms, if at all. Furthermore, because of the potential for significant damage awards, which are not necessarily predictable, it is not unusual to find even arguably unmeritorious claims resulting in large settlements. If any infringement or other intellectual property claim made against us by any third party (including NMS or Radfarma) is successful, or if we fail to develop non-infringing technology or license the proprietary rights on commercially reasonable terms and conditions, our business, operating results and financial condition could be materially adversely affected.

If the ASP technology that we license from Klydon infringes the proprietary rights of other parties (including NMS or Radfarma), we could incur substantial costs, and we may have to take certain actions, including the following:

- obtain licenses, which may not be available on commercially reasonable terms, if at all;
- redesign our technology or processes to avoid infringement;
- stop using the subject matter claimed to be held by others;
- pay damages; or
- defend arbitration, litigation or administrative proceedings which may be costly whether we win or lose (and may be prohibitively expensive, particularly for a company of our size), and which could result in a substantial diversion of our financial and management resources.

In addition, in an infringement proceeding, a court or tribunal may decide that our asserted intellectual property is not valid or is unenforceable. An adverse determination in any litigation, arbitration or defense proceedings could put our licensed intellectual property at risk of being invalidated or interpreted narrowly. If the licensed rights granted to us are found to be invalid or unenforceable (in whole or in part), or if our exclusive license agreement with Klydon is terminated or Klydon, as licensor, fails to abide by the terms of our exclusive license agreement, our ability to commercialize our future isotopes would suffer and our business, results of operations and financial condition may be adversely affected.

We may enter into collaboration agreements and strategic alliances, and we may not realize the anticipated benefits of such collaborations or alliances.

We may wish to form collaborations in the future with respect to our future isotopes but may not be able to do so or to realize the potential benefits of such transactions, which may cause us to alter or delay our development and commercialization plans. Research and development collaborations are subject to numerous risks, which may include the following:

- collaborators have significant discretion in determining the efforts and resources that they will apply to a collaboration and may not commit sufficient efforts and resources or may misapply those efforts and resources;
- collaborators may not pursue development and commercialization of future isotopes or may elect not to continue or renew development or commercialization programs;
- collaborators may delay, provide insufficient resources to, or modify or stop development activities for future isotopes;
- collaborators could develop or acquire products outside of the collaboration that compete directly or indirectly with our future isotopes;
- collaborators may not properly maintain or defend our intellectual property rights or may use our intellectual property or proprietary information in a way that gives rise to actual or threatened litigation that could jeopardize or invalidate our intellectual property or proprietary information or expose us to potential liability;
- disputes may arise between us and a collaborator that cause the delay or termination of the research, development or commercialization of our future isotopes, or that result in costly litigation or arbitration that diverts management attention and resources;
- collaborations may be terminated and, if terminated, may result in a need for additional capital and personnel to pursue further development or commercialization of the applicable future isotopes; and
- collaborators may own or co-own intellectual property covering our products that results from our collaborating with them, and in such cases, we may not have the exclusive right to commercialize such intellectual property.

The development and potential commercialization of our future isotopes will require substantial additional capital to fund expenses. We may form or seek further strategic alliances, create joint ventures or collaborations, or enter into additional licensing arrangements with third parties that we believe will complement or augment our development and commercialization efforts with respect to our future isotopes, including in territories outside the United States or for certain indications. These transactions can entail numerous operational and financial risks, including exposure to unknown liabilities, disruption of our business and diversion of our management's time and attention in order to manage a collaboration or develop acquired products or technologies, incurrence of substantial debt or dilutive issuances of equity securities to pay transaction consideration or costs, higher than expected collaboration, acquisition or integration costs, write-downs of assets or goodwill or impairment charges, increased amortization expenses, difficulty and cost in facilitating the collaboration or combining the operations and personnel of any acquired business, impairment of relationships with key suppliers, manufacturers or customers of any acquired business due to changes in management and ownership and the inability to retain key employees of any acquired business. As a result, if we enter into acquisition or in-license agreements or strategic partnerships, we may not be able to realize the benefit of such transactions if we are unable to successfully integrate them with our existing operations and company culture, or if there are materially adverse impacts on our or the counterparty's operations resulting from COVID-19, which could delay our timelines or otherwise adversely affect our business. We also cannot be certain that, following a strategic transaction or license, we will achieve the revenue or specific net income that justifies such transaction or such other benefits that led us to enter into the arrangement.

In addition, we face significant competition in seeking appropriate strategic partners and the negotiation process is time-consuming and complex. We may not be successful in our efforts to establish a strategic partnership or other alternative arrangements for our future isotopes because they may be deemed to be at too early of a stage of development for collaborative effort and third parties may not view our future isotopes as having the requisite potential to demonstrate safety and efficacy. If and when we collaborate with a third-party for development and commercialization of a future isotope, we can expect to relinquish some or all of the control over the future success of that future isotope to the third-party. Our ability to reach a definitive agreement for a collaboration will depend, among other things, upon our assessment of the collaborator's resources and expertise, the terms and conditions of the proposed collaboration and the proposed collaborator's evaluation of our technologies, future isotopes and market opportunities. The collaborator may also consider alternative isotopes or technologies for similar applications that may be available to collaborate on and whether such a collaboration could be more attractive than the one with us for our future isotope. We may also be restricted under any license agreements from entering into agreements on certain terms or at all with potential collaborators.

As a result of these risks, we may not be able to realize the benefit of our existing collaborations or any future collaborations or licensing agreements we may enter into. In addition, we may not be able to negotiate collaborations on a timely basis, on acceptable terms, or at all. If we are unable to do so, we may have to curtail the development of such future isotope, reduce or delay one or more of our other development programs, delay the potential commercialization or reduce the scope of any planned sales or marketing activities for such future isotope, or increase our expenditures and undertake development, manufacturing or commercialization activities at our own expense. If we elect to increase our expenditures to fund development, manufacturing or commercialization activities on our own, we may need to obtain additional capital, which may not be available to us on acceptable terms or at all. If we do not have sufficient funds, we may not be able to further develop our future isotopes or bring them to market and generate product revenue.

We may be dependent on intellectual property licensed or sublicensed to us from, or for which development was funded or otherwise assisted by, government agencies, for development of our technology and future isotopes. Failure to meet our own obligations to our licensor or upstream licensors, including such government agencies, may result in the loss of our rights to such intellectual property, which could harm our business.

Government agencies may provide funding, facilities, personnel or other assistance in connection with the development of the intellectual property rights owned by or licensed to us. Such government agencies may have retained rights in such intellectual property, including the right to grant or require us to grant mandatory licenses or sublicenses to such intellectual property to third parties under certain specified circumstances, including if it is necessary to meet health and safety needs that we are not reasonably satisfying or if it is necessary to meet requirements for public use specified by federal regulations, or to manufacture products in the United States. Any exercise of such rights, including with respect to any such required sublicense of these licenses could result in the loss of significant rights and could harm our ability to commercialize licensed products.

If we are unable to obtain patent protection for our future isotopes, or if the scope of the patent protection obtained is not sufficiently broad, we may not be able to compete effectively in our markets.

We anticipate that either Klydon or ourselves will file patent applications both in the United States and in other countries, as appropriate. However, we cannot predict:

- if and when any patents will issue;
- the degree and scope of protection any issued patents will afford us against competitors, including whether third parties will find ways to invalidate or otherwise circumvent our patents;
- whether others will apply for or obtain patents claiming aspects similar to those covered by our patents and patent applications;
- whether we will need to initiate litigation or administrative proceedings to defend our patent rights, which may be costly whether we win or lose; or
- whether the patent applications that we own or in-license will result in issued patents with claims that cover our future isotopes or uses thereof in the United States or in foreign countries.

We currently rely upon a combination of trade secret protection and confidentiality agreements to protect the intellectual property related to our isotope development techniques and future isotopes. Our success will depend in large part on our (or Klydon, as our licensor) ability to obtain and maintain patent protection in the United States and other countries with respect to the ASP technology. We expect Klydon to seek to protect its proprietary position by filing patent applications in the United States and abroad related to its current and future development programs and future isotopes to the extent permitted by applicable law. Our exclusive license agreement with Klydon provides that additional patents, knowhow and improvements in the ASP technology that may be developed in the future will be considered part of the intellectual property rights granted under the license. The patent prosecution process is expensive and time-consuming, and we may not be able to file and prosecute all necessary or desirable patent applications at a reasonable cost or in a timely manner, including as a result of the COVID-19 pandemic impacting our or our licensors' operations.

It is possible that we (or Klydon, as our licensor) will fail to identify patentable aspects of our research and development output before it is too late to obtain patent protection. The patent applications that we own or in-license may fail to result in issued patents with claims that cover our future isotopes in the United States or in foreign countries. There is no assurance that all of the potentially relevant prior art relating to our (or Klydon's) patents and patent applications has been found, which can invalidate a patent or prevent a patent from being issued from a pending patent application. Even if patents are successfully issued and even if such patents cover the ASP technology, third parties may challenge their scope, validity, or enforceability, which may result in such patents being narrowed, invalidated, or held unenforceable. Any successful opposition to these patents or any other patents owned by or licensed to us could deprive us of rights necessary for the successful commercialization of any future isotopes using the ASP technology. Further, if we encounter delays in regulatory approvals, the period of time during which we could market a future isotope could be reduced.

If the patent applications we hold or have in-licensed with respect to our development programs fail to issue, if their breadth or strength of protection is threatened, or if they fail to provide meaningful exclusivity for the ASP technology, it could dissuade companies from collaborating with us, and threaten our ability to commercialize, isotopes produced using the ASP technology. Any such outcome could have a negative effect on our business.

Even if we obtain patents covering the ASP technology or our methods, we may still be barred from making, using and selling such technology or methods because of the patent rights of others. Others may have filed, and in the future may file, patent applications covering technology or methods that are similar or identical to ours, which could materially affect our ability to successfully develop our technology or to successfully commercialize any isotopes alone or with collaborators.

Patent applications in the United States and elsewhere are generally published approximately 18 months after the earliest filing for which priority is claimed, with such earliest filing date being commonly referred to as the priority date. Therefore, patent applications covering our platform technologies and methods could have been filed by others without our knowledge. Additionally, pending claims in patent applications which have been published can, subject to certain limitations, be later amended in a manner that could cover our platform technologies. These patent applications may have priority over patent applications filed by us.

Obtaining and maintaining our patent protection depends on compliance with various procedural, document submission, fee payment and other requirements imposed by government patent agencies, and our patent protection could be reduced or eliminated for non-compliance with these requirements.

Periodic maintenance fees, renewal fees, annuity fees and various other government fees on patents and/or applications will be due to be paid to the USPTO and various government patent agencies outside of the United States over the lifetime of our owned and licensed patents and/or applications and any patent rights we may own or license in the future. We will rely on our outside counsel, patent annuity service providers, or our licensing partners to pay these fees due to non-U.S. patent agencies. The USPTO and various non-U.S. government patent agencies require compliance with several procedural, documentary, and other similar provisions during the patent application process. We will employ reputable law firms and other professionals to help us comply and we will also be dependent on Klydon (as our licensor) to take the necessary action to comply with these requirements with respect to our licensed intellectual property. In many cases, an inadvertent lapse can be cured by payment of a late fee or by other means in accordance with the applicable rules. There are situations, however, in which non-compliance can result in abandonment or lapse of the patent or patent application, resulting in partial or complete loss of patent rights in the relevant jurisdiction. In such an event, potential competitors might be able to enter the market and this circumstance could harm our business.

Third parties may initiate legal proceedings alleging that we are infringing their intellectual property rights, the outcome of which would be uncertain and could have a negative impact on the success of our business.

Our commercial success depends, in part, upon our ability and the ability of our current or future collaborators to develop, manufacture, market and sell our future isotopes and use our proprietary technologies without infringing the proprietary rights and intellectual property of third parties. The technology industry is characterized by extensive and complex litigation regarding patents and other intellectual property rights. Our future isotopes and other proprietary technologies we may develop may infringe existing or future patents owned by third parties. We may in the future become party to, or be threatened with, adversarial proceedings or litigation regarding intellectual property rights with respect to our future isotopes and technology, including interference proceedings, post-grant review and inter partes review before the USPTO. Third parties may assert infringement claims against us based on existing patents or patents that may be granted in the future, regardless of their merit. There is a risk that third parties may choose to engage in litigation with us to enforce or to otherwise assert their patent rights against us. Even if we believe such claims are without merit, a court of competent jurisdiction could hold that these third-party patents are valid, enforceable and infringed, which could have a negative impact on our ability to commercialize our future isotopes. In order to successfully challenge the validity of any such U.S. patent in federal court, we would need to overcome a presumption of validity. As this burden is a high one requiring us to present clear and convincing evidence as to the invalidity of any such U.S. patent claim, there is no assurance that a court of competent jurisdiction would invalidate the claims of any such U.S. patent. If we are found to infringe a third party's valid and enforceable intellectual property rights, we could be required to obtain a license from such third party to continue developing, manufacturing and marketing our future isotope(s) and technology. However, we may not be able to obtain any required license on commercially reasonable terms or at all. Even if we were able to obtain a license, it could be non-exclusive, thereby giving our competitors and other third parties access to the same technologies licensed to us, and it could require us to make substantial licensing and royalty payments. We could be forced, including by court order, to cease developing, manufacturing and commercializing the infringing technology or future isotope. In addition, we could be found liable for monetary damages, including treble damages and attorneys' fees, if we are found to have willfully infringed a patent or other intellectual property right. A finding of infringement could prevent us from manufacturing and commercializing our future isotopes or force us to cease some or all of our business operations, which could materially harm our business. Claims that we have misappropriated the confidential information or trade secrets of third parties could have a similar negative impact on our business, financial condition, results of operations and prospects.

Third parties asserting their patent or other intellectual property rights against us may seek and obtain injunctive or other equitable relief, which could effectively block our ability to further develop and commercialize our future isotopes or force us to cease some of our business operations. Defense of these claims, regardless of their merit, would involve substantial litigation expense and would be a substantial diversion of management and other employee resources from our business, cause development delays, and may impact our reputation. In the event of a successful claim of infringement against us, we may have to pay substantial damages, including treble damages and attorneys' fees for willful infringement, obtain one or more licenses from third parties, pay royalties, or redesign our infringing products, which may be impossible on a cost-effective basis or require substantial time and monetary expenditure. In that event, we would be unable to further develop and commercialize our future isotopes, which could harm our business significantly. Claims that we have misappropriated the confidential information or trade secrets of third parties could have a similar negative impact on our business.

We may be subject to claims asserting that our employees, consultants or advisors have wrongfully used or disclosed alleged trade secrets of their current or former employers or claims asserting ownership of what we regard as our own intellectual property.

Certain of our employees, consultants or advisors are currently, or were previously, employed at universities or other technology companies, including Klydon. Although we try to ensure that our employees, consultants and advisors do not use the proprietary information or know-how of others in their work for us, we may be subject to claims that these individuals or we have used or disclosed intellectual property, including trade secrets or other proprietary information, of any such individual's current or former employer. Litigation may be necessary to defend against these claims. If we fail in defending any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights or personnel. Even if we are successful in defending against such claims, litigation could result in substantial costs and be a distraction to management.

In addition, while it is our policy to require our employees and contractors who may be involved in the conception or development of intellectual property to execute agreements assigning such intellectual property to us, we may be unsuccessful in executing such an agreement with each party who, in fact, conceives or develops intellectual property that we regard as our own. The assignment of intellectual property rights may not be self-executing or the assignment agreements may be breached, and we may be forced to bring claims against third parties, or defend claims that they may bring against us, to determine the ownership of what we regard as our intellectual property.

Reliance on third parties requires us to share our trade secrets, which increases the possibility that a competitor will discover them or that our trade secrets will be misappropriated or disclosed.

If we rely on third parties to manufacture or commercialize our future isotopes, or if we collaborate with additional third parties for the development of our future isotopes, we must, at times, share trade secrets with them. We may also conduct joint research and development programs that may require us to share trade secrets under the terms of our research and development partnerships or similar agreements. We seek to protect our proprietary technology in part by entering into confidentiality agreements and, if applicable, material transfer agreements, services agreements, consulting agreements or other similar agreements with our advisors, employees, third-party contractors and consultants prior to beginning research or disclosing proprietary information. These agreements typically limit the rights of the third parties to use or disclose our confidential information, including our trade secrets. Despite the contractual provisions employed when working with third parties, the need to share trade secrets and other confidential information increases the risk that such trade secrets become known by our competitors, are inadvertently incorporated into the technology of others, or are disclosed or used in violation of these agreements. Given that our proprietary position is based, in part, on our know-how and trade secrets, a competitor's discovery of our trade secrets or other unauthorized use or disclosure could have an adverse effect on our business and results of operations.

In addition, these agreements typically restrict the ability of our advisors, employees, third-party contractors and consultants to publish data potentially relating to our trade secrets. Despite our efforts to protect our trade secrets, our competitors may discover our trade secrets, either through breach of our agreements with third parties, independent development or publication of information by any third-party collaborators. A competitor's discovery of our trade secrets could harm our business.

Confidentiality agreements with employees and third parties may not prevent unauthorized disclosure of trade secrets and other proprietary information.

In addition to the protection afforded by patents, we seek to rely on trade secret protection and confidentiality agreements to protect proprietary know-how that is not patentable or that we elect not to patent, processes for which patents are difficult to enforce, and any other elements of our future isotopes, technology and product discovery and development processes that involve proprietary know-how, information, or technology that is not covered by patents. Any disclosure, either intentional or unintentional, by our employees, the employees of third parties with whom we share our facilities or third-party consultants and vendors that we engage, or misappropriation by third parties (such as through a cybersecurity breach) of our trade secrets or proprietary information could enable competitors to duplicate or surpass our technological achievements, thus eroding our competitive position in our market. Because we expect to rely on third parties in the development and manufacture of our future isotopes, we must, at times, share trade secrets with them. Our reliance on third parties requires us to share our trade secrets, which increases the possibility that a competitor will discover them or that our trade secrets will be misappropriated or disclosed.

Trade secrets and confidential information, however, may be difficult to protect. We seek to protect our trade secrets, know-how and confidential information, including our proprietary processes, in part, by entering into confidentiality agreements with our employees, consultants, outside scientific advisors, contractors, and collaborators. With our consultants, contractors, and outside scientific collaborators, these agreements typically include invention assignment obligations. We cannot guarantee that we have entered into such agreements with each party that may have or has had access to our trade secrets or proprietary technology and processes. Although we use reasonable efforts to protect our trade secrets, our employees, consultants, outside scientific advisors, contractors, and collaborators might intentionally or inadvertently disclose our trade secret information to competitors. In addition, competitors may otherwise gain access to our trade secrets or independently develop substantially equivalent information and techniques. Despite these efforts, any of these parties may breach the agreements and disclose our proprietary information, including our trade secrets, and we may not be able to obtain adequate remedies for such breaches. Enforcing a claim that a party illegally disclosed or misappropriated a trade secret is difficult, expensive and time-consuming, and the outcome is unpredictable. If any of our trade secrets were to be lawfully obtained or independently developed by a competitor or other third-party, we would have no right to prevent them from using that technology or information to compete with us. Furthermore, the laws of some foreign countries do not protect proprietary rights to the same extent or in the same manner as the laws of the United States. As a result, we may encounter significant problems in protecting and defending our intellectual property both in the United States and abroad. If we are unable to prevent unauthorized material disclosure of our intellectual property to third parties, or misappropriation of our intellectual property by third parties, we may not be able to establish or maintain a competitive advantage in our market, which could materially adversely affect our business, operating results, and financial condition.

Risks Related to Our Dependence on Third Parties

If we use hazardous and chemical materials in a manner that causes injury or violates applicable law, we may be liable for damages.

Our research and development activities involve the controlled use of potentially hazardous substances, including chemical materials. Klydon is subject to international and local laws and regulations in South Africa governing the use, manufacture, storage, handling and disposal of radioactive and hazardous materials. Although we believe that Klydon's procedures for using, handling, storing and disposing of these materials comply with legally prescribed standards, we cannot completely eliminate the risk of contamination or injury resulting from radioactive or hazardous materials. As a result of any such contamination or injury, we may incur liability or local, city, state or federal authorities may curtail the use of these materials and interrupt our business operations. In the event of an accident, we could be held liable for damages or penalized with fines, and the liability could exceed our resources. We do not have any insurance for liabilities arising from radioactive or hazardous materials. Compliance with applicable environmental laws and regulations is expensive, and current or future environmental regulations may impair our research, development, and production efforts, which could harm our business, prospects, financial condition, or results of operations.

Risks Related to Our Business Operations, Employee Matters and Managing Growth

We are highly dependent on the services of our senior management team, and if we are not able to retain these members of our management team and recruit and retain additional management, clinical and scientific personnel, our business will be harmed.

We are highly dependent on our senior management team. The employment agreements we have with these officers do not prevent such persons from terminating their employment with us at any time. The loss of the services of any of these persons could impede the achievement of our research, development and commercialization objectives.

In addition, we will need to attract, retain and motivate highly qualified additional management and scientific personnel. If we are not able to retain our management and to attract, on acceptable terms, additional qualified personnel necessary for the continued development of our business, we may not be able to sustain our operations or grow.

We may not be able to attract or retain qualified personnel in the future due to the intense competition for qualified personnel among biotechnology, pharmaceutical and other businesses. Many of the other pharmaceutical companies that we compete against for qualified personnel and consultants have greater financial and other resources, different risk profiles and a longer history in the industry than we do. They also may provide more diverse opportunities and better chances for career advancement. Some of these characteristics may be more appealing to high-quality candidates and consultants than what we have to offer. If we are unable to continue to attract, retain and motivate high-quality personnel and consultants to accomplish our business objectives, the rate and success at which we can develop future isotopes and our business will be limited, and we may experience constraints on our development objectives.

Our future performance will also depend, in part, on our ability to successfully integrate newly hired executive officers into our management team and our ability to develop an effective working relationship among senior management. Our failure to integrate these individuals and create effective working relationships among them and other members of management could result in inefficiencies in the development and commercialization of our future isotopes, harming future regulatory approvals, sales of our future isotopes and our results of operations. Additionally, we do not currently maintain "key person" life insurance on the lives of our executives or any of our employees.

We will need to expand our organization, and we may experience difficulties in managing this growth, which could disrupt our operations.

As of December 31, 2022, we had four full-time employees and we presently employ approximately 31 people on a full-time basis, 27 of whom are located in South Africa. We rely on service providers for certain general administrative, financial, accounting, tax, intellectual property and other legal services, and we will need to expand our organization to hire qualified personnel to perform these functions internally. Our management may need to divert significant attention and time to managing these growth activities. We may not be able to effectively manage the expansion of our operations, which may result in weaknesses in our infrastructure, operational inefficiencies, loss of business opportunities, loss of employees and reduced productivity among remaining employees. Our expected growth could require significant capital expenditures and may divert financial resources from other projects, such as the development of our future isotopes. If our management is unable to effectively manage our growth, our expenses may increase more than expected, our ability to generate and grow revenue could be reduced and we may not be able to implement our business strategy. Our future financial performance, our ability to commercialize future isotopes, develop a scalable infrastructure and compete effectively will depend, in part, on our ability to effectively manage any future growth.

Our employees, consultants and commercial partners may engage in misconduct or other improper activities, including non-compliance with regulatory standards and requirements and insider trading.

We are exposed to the risk of fraud or other misconduct by our employees, consultants and commercial partners. Misconduct by these parties could include intentional failures to comply with FDA regulations or the regulations applicable in other jurisdictions, provide accurate information to the FDA and other regulatory authorities, report financial information or data accurately or disclose unauthorized activities to us. It is not always possible to identify and deter employee misconduct, and the precautions we take to detect and prevent this activity may not be effective in controlling unknown or unmanaged risks or losses or in protecting us from government investigations or other actions or lawsuits stemming from a failure to comply with these laws or regulations. If any such actions are instituted against us and we are not successful in defending ourselves or asserting our rights, those actions could have a negative impact on our business, financial condition, results of operations and prospects, including the imposition of significant fines or other sanctions.

Significant disruptions of our information technology systems or data security incidents could result in significant financial, legal, regulatory, business and reputational harm to us.

We are dependent on information technology systems and infrastructure, including mobile technologies, to operate our business. In the ordinary course of our business, we collect, store, process and transmit large amounts of sensitive information, including intellectual property, proprietary business information, personal information and other confidential information. It is critical that we do so in a secure manner to maintain the confidentiality, integrity and availability of such sensitive information. We have also outsourced elements of our operations (including elements of our information technology infrastructure) to third parties, and as a result, we manage a number of third-party vendors who may or could have access to our computer networks or our confidential information. In addition, many of those third parties, in turn, subcontract or outsource some of their responsibilities to third parties. While all information technology operations are inherently vulnerable to inadvertent or intentional security breaches, incidents, attacks and exposures, the accessibility and distributed nature of our information technology systems, and the sensitive information stored on those systems, make such systems potentially vulnerable to unintentional or malicious, internal and external attacks on our technology environment. In addition, some of our employees work remotely, which may make us more vulnerable to cyberattacks. Potential vulnerabilities can be exploited from inadvertent or intentional actions of our employees, third-party vendors, business partners, or by malicious third parties. Attacks of this nature are increasing in their frequency, levels of persistence, sophistication and intensity, and are being conducted by sophisticated and organized groups and individuals with a wide range of motives (including, but not limited to, industrial espionage) and expertise, including organized criminal groups, "hacktivists," nation states and others. In addition to the extraction of sensitive information, such attacks could include the deployment of harmful malware, ransomware, denial-of-service attacks, social engineering and other means to affect service reliability and threaten the confidentiality, integrity and availability of information. In addition, the prevalent use of mobile devices increases the risk of data security incidents.

Significant disruptions of our, our third-party vendors' and/or our business partners' information technology systems or other similar data security incidents could adversely affect our business operations and/or result in the loss, misappropriation, and/or unauthorized access, use or disclosure of, or the prevention of access to, sensitive information, which could result in financial, legal, regulatory, business and reputational harm to us. In addition, information technology system disruptions, whether from attacks on our technology environment or from computer viruses, natural disasters, terrorism, war and telecommunication and electrical failures, could result in a material disruption of our development programs and our business operations. Additionally, theft of our intellectual property or proprietary business information could require substantial expenditures to remedy. If we or our third-party collaborators, consultants, contractors, suppliers, or service providers were to suffer an attack or breach, for example, that resulted in the unauthorized access to or use or disclosure of personal or health information, we may have to notify consumers, partners, collaborators, government authorities, and the media, and may be subject to investigations, civil penalties, administrative and enforcement actions, and litigation, any of which could harm our business and reputation.

There is no way of knowing with certainty whether we have experienced any data security incidents that have not been discovered. While we have no reason to believe this to be the case, attackers have become very sophisticated in the way they conceal access to systems, and many companies that have been attacked are not aware that they have been attacked. Any event that leads to unauthorized access, use or disclosure of personal information, including but not limited to personal information regarding our patients or employees, could disrupt our business, harm our reputation, compel us to comply with applicable federal and/or state breach notification laws and foreign law equivalents, subject us to time-consuming, distracting and expensive litigation, regulatory investigation and oversight, mandatory corrective action, require us to verify the correctness of database contents, or otherwise subject us to liability under laws, regulations and contractual obligations, including those that protect the privacy and security of personal information. This could result in increased costs to us, and result in significant legal and financial exposure and/or reputational harm. In addition, any failure or perceived failure by us or our vendors or business partners to comply with our privacy, confidentiality or data security-related legal or other obligations to third parties, or any further security incidents or other inappropriate access events that result in the unauthorized access, release or transfer of sensitive information, which could include personally identifiable information, may result in governmental investigations, enforcement actions, regulatory fines, litigation, or public statements against us by advocacy groups or others, and could cause third parties, including clinical sites, regulators or current and potential partners, to lose trust in us or we could be subject to claims by third parties that we have breached our privacy- or confidentiality-related obligations, which could materially and adversely affect our business and prospects. Moreover, data security incidents and other inappropriate access can be difficult to detect, and any delay in identifying them may lead to increased harm of the type described above. While we have implemented security measures intended to protect our information technology systems and infrastructure, there can be no assurance that such measures will successfully prevent service interruptions or security incidents.

Our international operations subject us to risks of doing business in foreign countries, which could adversely affect our business, financial condition and results of operations.

Our primary operations are located outside the U.S. (primarily the construction of the isotope enrichment plant in South Africa), and we plan to sell our isotopes to customers outside the U.S. Accordingly, our business is subject to risks related to the differing legal, political, social and regulatory requirements and economic conditions of non-U.S. jurisdictions. Risks inherent in international operations include the following:

- fluctuations in foreign currency exchange rates may affect product demand and may adversely affect the profitability in U.S. dollars of products and services we provide in international markets where payment for our products and services is made in the local currency;
- transportation and other shipping costs may increase, or transportation may be inhibited;
- increased cost or decreased availability of raw materials;

- changes in foreign laws and tax rates or U.S. laws and tax rates with respect to foreign income may unexpectedly increase the rate at which our income is taxed, impose new and additional taxes on remittances, repatriation or other payments by subsidiaries, or cause the loss of previously recorded tax benefits;
- foreign countries in which we do business may adopt other restrictions on foreign trade or investment, including currency exchange controls;
- trade sanctions by or against these countries could result in our losing access to customers and suppliers in those countries;
- unexpected adverse changes in foreign laws or regulatory requirements may occur;
- our agreements with counterparties in foreign countries may be difficult for us to enforce and related receivables may be difficult for us to collect;
- compliance with the variety of foreign laws and regulations may be unduly burdensome;
- compliance with anti-bribery and anti-corruption laws (such as the Foreign Corrupt Practices Act) as well as anti-money- laundering laws may be costly;
- unexpected adverse changes in export duties, quotas and tariffs and difficulties in obtaining export licenses may occur;
- general economic conditions in the countries in which we operate could have an adverse effect on our earnings from operations in those countries;
- our foreign operations may experience staffing difficulties and labor disputes;
- termination or substantial modification of international trade agreements may adversely affect our access to raw materials and to markets for our products outside the U.S.;
- foreign governments may nationalize or expropriate private enterprises;
- increased sovereign risk (such as default by or deterioration in the economies and creditworthiness of local governments) may occur; and
- political or economic repercussions from terrorist activities, including the possibility of hyperinflationary conditions and political instability, may occur in certain countries in which we do business.

Unanticipated events, such as geopolitical changes, could result in a write-down of our investment in the affected joint venture or a delay or cause cancellation of those capital projects, which could negatively impact our future growth and profitability. Our success as a global business will depend, in part, upon our ability to succeed in differing legal, regulatory, economic, social and political conditions by developing, implementing and maintaining policies and strategies that are effective in each location where we and our joint ventures do business.

Furthermore, we will be subject to rules and regulations related to anti-bribery and anti-trust prohibitions of the U.S. and other countries, as well as export controls and economic embargoes, violations of which may carry substantial penalties. For example, export control and economic embargo regulations limit the ability of our subsidiaries to market, sell, distribute or otherwise transfer their products or technology to prohibited countries or persons. Failure to comply with these regulations could subject our subsidiaries to fines, enforcement actions and/or have an adverse effect on our reputation and the value of our common stock.

Our tangible assets may be subject to defects in title.

We have investigated our rights to the assets we have purchased and developed, and, to the best of our knowledge, those rights are in good standing. However, no assurance can be given that such rights will not be revoked, or significantly altered, to our detriment. There can also be no assurance that our rights will not be challenged or impugned by third parties, including by governments and non-governmental organizations.

We are subject to foreign currency risks.

Our operations are subject to foreign currency fluctuations. Our operating expenses and revenues are primarily transacted in U.S. dollars, while some of our cash balances and expenses are measured in other currencies. Any strengthening or weakening of the U.S. dollar in relation to the currencies of other countries or vice versa can have a material impact on our cash flows and profitability and affect the value of our assets and shareholders' equity.

Risks Related to Ownership of Our Common Stock

We do not know whether an active, liquid and orderly trading market will develop for our common stock or what the market price of our common stock will be and as a result it may be difficult for you to sell your shares of our common stock.

Prior to our IPO in November of 2022, there was no public market for shares of our common stock. Although our common stock is listed on the Nasdaq Capital Market (Nasdaq), an active trading market for our shares has not yet developed, and may never develop or if developed be sustained in the future. You may not be able to sell your shares quickly or at the market price if trading in shares of our common stock is not active. The initial public offering price for our common stock was determined through negotiations with the underwriters, and the negotiated price is not indicative of the market price of our common stock as of the date of this Form 10-K. As a result of these and other factors, you may be unable to resell your shares of our common stock at or above the initial public offering price.

Further, an inactive market may also impair our ability to raise capital by selling shares of our common stock and may impair our ability to enter into strategic partnerships or acquire companies or products by using our shares of common stock as consideration.

The price of our stock may be volatile, and you could lose all or part of your investment.

The trading price of our common stock is highly volatile and could be subject to wide fluctuations in response to various factors, some of which are beyond our control, including limited trading volume. In addition to the factors discussed in this "Risk Factors" section and elsewhere in this Form 10-K, these factors include:

- adverse results or delays in our development activities;
- adverse regulatory decisions, including failure to receive regulatory approval for our future isotopes;
- changes in laws or regulations applicable to our future isotopes, including but not limited to requirements for approvals;
- any changes to our relationship with any manufacturers, suppliers, licensors, future collaborators or other strategic partners;
- our inability to obtain adequate product supply for any future isotope or inability to do so at acceptable prices;
- our inability to establish collaborations if needed;
- our failure to commercialize our future isotopes;
- additions or departures of key scientific or management personnel;
- unanticipated serious safety concerns related to the use of our future isotopes;
- introduction of new products or services offered by us or our competitors;
- announcements of significant acquisitions, strategic partnerships, joint ventures, or capital commitments by us or our competitors;
- our ability to effectively manage our growth;
- actual or anticipated variations in quarterly operating results;
- our cash position;
- our failure to meet the estimates and projections of the investment community or that we may otherwise provide to the public;
- publication of research reports about us or our industry or positive or negative recommendations or withdrawal of research coverage by securities analysts;
- changes in the market valuations of similar companies;
- overall performance of the equity markets;
- issuances of debt or equity securities;
- sales of our common stock by us or our stockholders in the future or the perception that such sales may occur;
- trading volume of our common stock;
- changes in accounting practices;
- ineffectiveness of our internal controls;
- disputes or other developments relating to proprietary rights, including patents, litigation matters, and our ability to obtain patent protection for our technologies;
- significant lawsuits, including patent or stockholder litigation;
- general political and economic conditions, including the COVID-19 pandemic; and
- other events or factors, many of which are beyond our control.

In addition, the stock market in general, and biopharmaceutical companies in particular, have experienced extreme price and volume fluctuations that have often been unrelated or disproportionate to the operating performance of these companies. Broad market and industry factors may negatively affect the market price of our common stock, regardless of our actual operating performance, and you may not realize any return on your investment in us and may lose some or all of your investment. In the past, securities class action litigation has often been instituted against companies following periods of volatility in the market price of a company's securities. This type of litigation, if instituted, could result in substantial costs and a diversion of management's attention and resources, which would harm our business, operating results or financial condition.

We do not intend to pay dividends on our common stock, so any returns will be limited to the value of our stock.

We have never declared or paid any cash dividend on our common stock. We currently anticipate that we will retain future earnings for the development, operation, and expansion of our business and do not anticipate declaring or paying any cash dividends for the foreseeable future. Any return to stockholders would therefore be limited to the appreciation, if any, of their stock.

Our principal stockholders and management own a significant percentage of our stock and will be able to exert significant control over matters subject to stockholder approval.

Our executive officers, current directors, greater than 5% holders, and their affiliates beneficially own, in the aggregate, approximately 53.7% of our common stock as of December 31, 2022. Therefore, these stockholders will have the ability to influence us through this ownership position. These stockholders may be able to determine all matters requiring stockholder approval. For example, these stockholders may be able to control elections of directors, amendments of our organizational documents, or approval of any merger, sale of assets, or other major corporate transaction. This may prevent or discourage unsolicited acquisition proposals or offers for our common stock that you may feel are in your best interest as one of our stockholders.

Sales of a substantial number of shares of our common stock by our existing stockholders in the public market, or the perception that such sales could occur, could cause our stock price to fall.

If our existing stockholders sell, or indicate an intention to sell, substantial amounts of our common stock in the public market after the lock-up and other legal restrictions on resale lapse, the trading price of our common stock could decline. As of March 29, 2023, we had a total of 37,385,684 shares of common stock outstanding. Of these shares, the shares of common stock sold in our IPO by us, any shares sold upon exercise of the underwriters' option to purchase additional shares and 8,702,500 shares eligible for resale under Rule 144 of the Securities Act are freely tradable without restriction in the public market.

Subject to the restrictions described in the paragraph below, future sales in the public market of shares will be subject to the volume and other restrictions of Rule 144 under the Securities Act if held by a person that is deemed to be our affiliate, unless the shares to be sold are registered with the SEC. The sale of a substantial number of shares pursuant to Rule 144 or other exemption from registration under the Securities Act, or a perception that such sales could occur, could significantly reduce the market price of our common stock.

Of our outstanding common stock, shares held by our management are subject to lock-up agreements pertaining to our IPO that we expect will expire on May 15, 2023. After the lock-up agreements expire, the shares held by directors, executive officers, and other affiliates and will be subject to volume limitations under Rule 144 under the Securities Act. In addition, 2,949,611 shares of common stock that are either subject to outstanding options or reserved for future issuance under our employee benefit plans will become eligible for sale in the public market to the extent permitted by the provisions of various vesting schedules, the lock-up agreements, and Rule 144 and Rule 701 under the Securities Act. If these additional shares of common stock are sold, or if it is perceived that they will be sold, in the public market, the trading price of our common stock could decline.

We have an aggregate of 8,702,500 shares which are freely tradable without restriction under the Securities Act. Up to 28,683,184 shares are held by our affiliates and are subject to limitations imposed by Rule 144 and/or lock-up agreements which expire on May 15, 2023. Any sales of these securities could have a material adverse effect on the trading price of our common stock.

Future sales and issuances of our common stock or rights to purchase common stock, including pursuant to our equity incentive plans, could result in additional dilution of the percentage ownership of our stockholders and could cause our stock price to fall.

We expect that we will need significant additional capital in the future to continue our planned operations, including development activities, commercialization efforts if we are able to obtain marketing approval of future isotopes, research and development activities, and costs associated with operating a public company. To raise capital, we may sell common stock, convertible securities or other equity securities in one or more transactions at prices and in a manner that we determine from time to time. If we sell common stock, convertible securities or other equity securities, investors may be materially diluted by subsequent sales. Such sales may also result in material dilution to our existing stockholders, and new investors could gain rights, preferences and privileges senior to the holders of our common stock, including shares of common stock sold in our IPO.

Pursuant to our 2022 Plan, our management is authorized to grant stock options to our employees, directors and consultants. Additionally, the number of shares of our common stock reserved for issuance under our 2022 Plan will automatically increase on January 1 of each year, beginning on January 1, 2023 and continuing through and including January 1, 2032, by 5% of the total number of shares of our capital stock outstanding on December 31 of the preceding calendar year (determined on an as-converted to voting common stock basis, without regard to any limitations on the conversion of the non-voting common stock), or a lesser number of shares determined by our board of directors. Such issuances will result in dilution to our stockholders.

We have broad discretion in the use of our existing cash and cash equivalents and may not use them effectively.

Our management has broad discretion in the application of our existing cash and cash equivalents. Because of the number and variability of factors that will determine our use of our existing cash and cash equivalents, their ultimate use may vary substantially from their currently intended use. Our management might not apply our existing cash and cash equivalents in ways that ultimately increase the value of our common stock. The failure by our management to apply these funds effectively could harm our business. We intend to invest our existing cash and cash equivalents that are not used as described above in short- and medium-term, investment-grade, interest-bearing instruments, certificates of deposit or direct or guaranteed obligations of the U.S. government. These investments may not yield a favorable return to our stockholders. If we do not invest or apply our existing cash and cash equivalents in ways that enhance stockholder value, we may fail to achieve expected financial results, which could cause our stock price to decline.

We are an emerging growth company and a smaller reporting company, and the reduced reporting requirements applicable to emerging growth companies and smaller reporting companies may make our common stock less attractive to investors.

We are an emerging growth company, as defined in the JOBS Act. For as long as we continue to be an emerging growth company, we may take advantage of exemptions from various reporting requirements that are applicable to other public companies that are not emerging growth companies, including not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act, reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements and exemptions from the requirements of holding nonbinding advisory votes on executive compensation and stockholder approval of any golden parachute payments not previously approved. We could be an emerging growth company until December 31, 2027, although circumstances could cause us to lose that status earlier, including if we become a "large accelerated filer" as defined in Rule 12b-2 under the Exchange Act or if we have total annual gross revenue of $1.235 billion or more during any fiscal year before that time, in which cases we would no longer be an emerging growth company as of the following December 31 or, if we issue more than $1.0 billion in non-convertible debt during any three year period before that time, we would cease to be an emerging growth company immediately. Even after we no longer qualify as an emerging growth company, we may still qualify as a "smaller reporting company" which would allow us to take advantage of many of the same exemptions from disclosure requirements including not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act and reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements. Investors may find our common stock less attractive because we may rely on these exemptions. If some investors find our common stock less attractive as a result, there may be a less active trading market for our common stock and our stock price may be more volatile.

In addition, the JOBS Act provides that an emerging growth company can take advantage of an extended transition period for complying with new or revised accounting standards. This provision allows an emerging growth company to delay the adoption of accounting standards that have different effective dates for public and private companies until those standards would otherwise apply to private companies. We have elected to avail ourselves of this exemption from new or revised accounting standards, and therefore we will not be subject to the same requirements to adopt new or revised accounting standards as other public companies that are not emerging growth companies.

We are also a "smaller reporting company" as defined in the Exchange Act. We may continue to be a smaller reporting company even after we are no longer an emerging growth company. We may take advantage of certain of the scaled disclosures available to smaller reporting companies and will be able to take advantage of these scaled disclosures for so long as our voting and non-voting common stock held by non-affiliates is less than $250.0 million measured on the last business day of our second fiscal quarter, or our annual revenue is less than $100.0 million during the most recently completed fiscal year and our voting and non-voting common stock held by non-affiliates is less than $700.0 million measured on the last business day of our second fiscal quarter.

Delaware law and provisions in our amended and restated certificate of incorporation and amended and restated bylaws could make a merger, tender offer or proxy contest difficult, thereby depressing the trading price of our common stock.

Provisions of our amended and restated certificate of incorporation and amended and restated bylaws, which became effective upon the closing of our IPO, may delay or discourage transactions involving an actual or potential change in our control or change in our management, including transactions in which stockholders might otherwise receive a premium for their shares or transactions that our stockholders might otherwise deem to be in their best interests. Therefore, these provisions could adversely affect the price of our common stock. Among other things, our amended and restated certificate of incorporation and amended and restated bylaws:

- permit our board of directors to issue up to 10,000,000 shares of preferred stock, with any rights, preferences and privileges as they may designate (including the right to approve an acquisition or other change in our control);
- provide that the authorized number of directors may be changed only by resolution of the board of directors;
- provide that our board of directors or any individual director may only be removed with cause and the affirmative vote of the holders of at least 66-2/3% of the voting power of all of our then-outstanding shares of the capital stock entitled to vote generally in the election of directors, voting together as a single class;
- provide that all vacancies, including newly created directorships, may, except as otherwise required by law, be filled by the affirmative vote of a majority of directors then in office, even if less than a quorum;
- divide our board of directors into three classes;
- require that any action to be taken by our stockholders must be effected at a duly called annual or special meeting of stockholders and not be taken by written consent;
- provide that stockholders seeking to present proposals before a meeting of stockholders or to nominate candidates for election as directors at a meeting of stockholders must provide notice in writing in a timely manner and also specify requirements as to the form and content of a stockholder's notice;

- do not provide for cumulative voting rights (therefore allowing the holders of a majority of the shares of common stock entitled to vote in any election of directors to elect all of the directors standing for election, if they should so choose);
- provide that special meetings of our stockholders may be called only by the chair of our board of directors, our Chief Executive Officer or by the board of directors pursuant to a resolution adopted by a majority of the total number of authorized directors; and
- provide that the Court of Chancery of the State of Delaware will be the sole and exclusive forum for the following types of actions or proceedings under state, statutory and common law: (i) any derivative action or proceeding brought on our behalf; (ii) any action asserting a claim of breach of a fiduciary duty owed by any of our directors, officers or other employees to us or our stockholders; (iii) any action asserting a claim pursuant to any provision of the Delaware General Corporation Law, our certificate of incorporation or our bylaws; (iv) any action as to which the Delaware General Corporation Law confers jurisdiction to the Court of Chancery of the State of Delaware; and (vi) any action governed by the internal affairs doctrine, in all cases subject to the court's having personal jurisdiction over the indispensable parties named as defendants; provided these provisions of our amended and restated certificate of incorporation and amended and restated bylaws will not apply to suits brought to enforce a duty or liability created by the Exchange Act, or any other claim for which the federal courts have exclusive jurisdiction; and provided that, unless we consent in writing to the selection of an alternative forum, to the fullest extent permitted by law, the federal district courts of the United States of America shall be the exclusive forum for the resolution of any complaint asserting a cause of action arising under the Securities Act of 1933, as amended (Securities Act), including all causes of action asserted against any defendant to such complaint. For the avoidance of doubt, this provision is intended to benefit and may be enforced by us, our officers and directors, the underwriters to any offering giving rise to such complaint, and any other professional or entity whose profession gives authority to a statement made by that person or entity and who has prepared or certified any part of the documents underlying the offering.

The amendment of any of these provisions, with the exception of the ability of our board of directors to issue shares of preferred stock and designate any rights, preferences and privileges thereto, would require approval by the holders of at least 66-2/3% of our then-outstanding common stock.

In addition, as a Delaware corporation, we are subject to Section 203 of the Delaware General Corporation Law. These provisions may prohibit large stockholders, in particular those owning 15% or more of our outstanding voting stock, from merging or combining with us for a certain period of time. A Delaware corporation may opt out of this provision by express provision in its original certificate of incorporation or by amendment to its certificate of incorporation or bylaws approved by its stockholders. However, we have not opted out of this provision.

These and other provisions in our amended and restated certificate of incorporation, amended and restated bylaws and Delaware law could make it more difficult for stockholders or potential acquirors to obtain control of our board of directors or initiate actions that are opposed by our then-current board of directors, including delay or impede a merger, tender offer or proxy contest involving our company. The existence of these provisions could negatively affect the price of our common stock and limit opportunities for you to realize value in a corporate transaction.

For information regarding these and other provisions, see "Description of Capital Stock."

Our amended and restated certificate of incorporation provides that the Court of Chancery of the State of Delaware will be the exclusive forum for certain disputes between us and our stockholders, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers, or employees.

Our amended and restated certificate of incorporation provides that, subject to the court's having personal jurisdiction over the indispensable parties named as defendants, unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware will be the sole and exclusive forum for the following types of actions or proceedings:

- any derivative action or proceeding brought on our behalf;
- any action asserting a claim of breach of fiduciary duty owed by any of our directors, officers or other employees to us or our stockholders;

- any action asserting a claim arising pursuant to any provision of the Delaware General Corporation Law, our certificate of incorporation or bylaws;
- any action as to which the Delaware General Corporation Law confers jurisdiction to the Court of Chancery of the State of Delaware; and
- any action asserting a claim that is governed by the internal affairs doctrine.

This provision would not apply to suits brought to enforce a duty or liability created by the Exchange Act. Furthermore, Section 22 of the Securities Act creates concurrent jurisdiction for federal and state courts over all such Securities Act actions. Accordingly, both state and federal courts have jurisdiction to entertain such claims. To prevent having to litigate claims in multiple jurisdictions and the threat of inconsistent or contrary rulings by different courts, among other considerations, our amended and restated certificate of incorporation further provides that the federal district courts of the United States of America will be the exclusive forum for resolving any complaint asserting a cause of action arising under the Securities Act. While the Delaware courts have determined that such choice of forum provisions are facially valid, a stockholder may nevertheless seek to bring a claim in a venue other than those designated in the exclusive forum provisions. In such instance, we would expect to vigorously assert the validity and enforceability of the exclusive forum provisions of our amended and restated certificate of incorporation. This may require significant additional costs associated with resolving such action in other jurisdictions and there can be no assurance that the provisions will be enforced by a court in those other jurisdictions.

These exclusive forum provisions may limit a stockholder's ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our directors, officers, or other employees, which may discourage lawsuits against us and our directors, officers and other employees. If a court were to find either exclusive forum provision in our amended and restated certificate of incorporation to be inapplicable or unenforceable in an action, we may incur further significant additional costs associated with resolving the dispute in other jurisdictions, all of which could seriously harm our business.

General Risk Factors

We will incur significant increased costs as a result of operating as a public company, and our management will be required to devote substantial time to new compliance initiatives.

As a public company, we will incur significant legal, accounting, and other expenses that we did not incur as a private company. We are subject to the reporting requirements of the Exchange Act, which require, among other things, that we file with the SEC annual, quarterly, and current reports with respect to our business and financial condition. In addition, the Sarbanes-Oxley Act, as well as rules subsequently adopted by the SEC and Nasdaq to implement provisions of the Sarbanes-Oxley Act, impose significant requirements on public companies, including requiring establishment and maintenance of effective disclosure and financial controls and changes in corporate governance practices. Further, in July 2010, the Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank Act) was enacted. There are significant corporate governance and executive compensation-related provisions in the Dodd-Frank Act that require the SEC to adopt additional rules and regulations in these areas such as "say on pay" and proxy access. Emerging growth companies and smaller reporting companies are exempted from certain of these requirements, but we may be required to implement these requirements sooner than budgeted or planned and thereby incur unexpected expenses. Stockholder activism, the current political environment and the current high level of government intervention and regulatory reform may lead to substantial new regulations and disclosure obligations, which may lead to additional compliance costs and impact the manner in which we operate our business in ways we cannot currently anticipate.

We expect the rules and regulations applicable to public companies to substantially increase our legal and financial compliance costs and to make some activities more time-consuming and costly. If these requirements divert the attention of our management and personnel from other business concerns, they could have a material adverse effect on our business, financial condition, and results of operations. The increased costs will decrease our net income or increase our net loss, and may require us to reduce costs in other areas of our business or increase the prices of our products or services. For example, we expect these rules and regulations to make it more difficult and more expensive for us to obtain director and officer liability insurance and we may be required to incur substantial costs to maintain the same or similar coverage. We cannot predict or estimate the amount or timing of additional costs we may incur to respond to these requirements. The impact of these requirements could also make it more difficult for us to attract and retain qualified persons to serve on our board of directors, our board committees or as executive officers.

We have identified a material weakness in our internal control over financial reporting. If our remediation of this material weakness is not effective, or if we experience material weaknesses in the future or otherwise fail to implement and maintain an effective system of internal controls in the future, we may not be able to accurately report our financial condition or results of operations which may adversely affect investor confidence in us, and as a result, the value of our common stock.

Our common stock was only recently listed on the NASDAQ Stock Exchange on November 10, 2022. Prior to listing, we were a privately-held company, we were not required to evaluate our internal control over financial reporting in a manner that meets the standards of publicly traded companies required by Section 404(a) of the Sarbanes-Oxley Act, or Section 404. As a public company, we are subject to significant requirements for enhanced financial reporting and internal controls. The process of designing and implementing effective internal controls is a continuous effort that requires us to anticipate and react to changes in our business and the economic and regulatory environments and to expend significant resources to maintain a system of internal controls that is adequate to satisfy our reporting obligations as a public company. In addition, we are required, pursuant to Section 404, to furnish a report by management on, among other things, the effectiveness of our internal control over financial reporting in the second annual report. This assessment will need to include disclosure of any material weaknesses identified by our management in our internal control over financial reporting. A material weakness is a deficiency or combination of deficiencies in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of a company's annual and interim financial statements will not be detected or prevented on a timely basis.

The rules governing the standards that must be met for our management to assess our internal control over financial reporting are complex and require significant documentation, testing, and possible remediation. Testing and maintaining internal controls may divert management's attention from other matters that are important to our business. Once we are no longer an "emerging growth company," or a "smaller reporting company", our auditors will be required to issue an attestation report on the effectiveness of our internal controls on an annual basis.

In the course of preparing the financial statements that are included in this Form 10-K, management has determined that a material weakness exists within the internal controls over financial reporting. The material weakness identified relates to the lack of a sufficient complement of personnel within the finance and accounting function with an appropriate degree of knowledge, experience and training. We also noted a material weakness related to logical security and privileged access in the area of information technology. We concluded that the material weakness in our internal control over financial reporting occurred because, prior to our IPO, we were a private company and did not have the necessary business processes, systems, personnel, and related internal controls necessary to satisfy the accounting and financial reporting requirements of a public company.

In order to remediate the material weakness, we expect to hire additional accounting, finance and resources or consultants with public company experience.

We may not be able to fully remediate the identified material weakness until the steps described above have been completed and our internal controls have been operating effectively for a sufficient period of time. We believe we have already and will continue to make progress in our remediation plan during the year ending December 31, 2022, but cannot assure you that we will be able to fully remediate the material weakness by such time. If the steps we take do not correct the material weakness in a timely manner, we will be unable to conclude that we maintain effective internal control over financial reporting. Accordingly, there could continue to be a reasonable possibility that a material misstatement of our financial statements would not be prevented or detected on a timely basis. We also may incur significant costs to execute various aspects of our remediation plan but cannot provide a reasonable estimate of such costs at this time.

In accordance with the provisions of the JOBS Act, we and our independent registered public accounting firm were not required to, and did not, perform an evaluation of our internal control over financial reporting as of December 31, 2022 nor any period subsequent in accordance with the provisions of the Sarbanes-Oxley Act. Accordingly, we cannot assure you that we have identified all material weaknesses. Material weaknesses may still exist when we report on the effectiveness of our internal control over financial reporting as required under Section 404 of the Sarbanes-Oxley Act after the completion of our IPO.

In the future, it is possible that additional material weaknesses or significant deficiencies may be identified that we may be unable to remedy before the requisite deadline for these reports. Our ability to comply with the annual internal control reporting requirements will depend on the effectiveness of our financial reporting and data systems and controls across our company. Any weaknesses or deficiencies or any failure to implement new or improved controls, or difficulties encountered in the implementation or operation of these controls, could harm our operating results and cause us to fail to meet our financial reporting obligations, or result in material misstatements in our consolidated financial statements, which could adversely affect our business and reduce our stock price.

If we are unable to conclude on an ongoing basis that we have effective internal control over financial reporting in accordance with Section 404, our independent registered public accounting firm may not issue an unqualified opinion. If we are unable to conclude that we have effective internal control over financial reporting, investors could lose confidence in our reported financial information, which could have a material adverse effect on the trading price of our common stock. Failure to remedy any material weakness in our internal control over financial reporting, or to implement or maintain other effective control systems required of public companies, could also restrict our future access to the capital markets.

We could be subject to securities class action litigation.

In the past, securities class action litigation has often been brought against a company following a decline in the market price of its securities. This risk is especially relevant for us because biopharmaceutical companies have experienced significant stock price volatility in recent years. If we face such litigation, it could result in substantial costs and a diversion of management's attention and resources, which could harm our business.

Our failure to meet Nasdaq's continued listing requirements could result in a delisting of our common stock.

If we fail to satisfy the continued listing requirements of Nasdaq, such as the corporate governance requirements or the minimum closing bid price requirement, Nasdaq may take steps to delist our common stock. Such a delisting would likely have a negative effect on the price of our common stock and would impair your ability to sell or purchase our common stock when you wish to do so. In the event of a delisting, we can provide no assurance that any action taken by us to restore compliance with listing requirements would allow our common stock to become listed again, stabilize the market price or improve the liquidity of our common stock, prevent our common stock from dropping below the Nasdaq minimum bid price requirement or prevent future non-compliance with the listing requirements of Nasdaq.

If securities or industry analysts do not publish research or publish inaccurate or unfavorable research about our business, our stock price and trading volume could decline.

The trading market for our common stock depends in part on the research and reports that securities or industry analysts publish about us or our business. Securities and industry analysts do not currently, and may never, publish research on our company. If no securities or industry analysts commence coverage of our company, the trading price for our stock would likely be negatively impacted. In the event securities or industry analysts initiate coverage, if one or more of the analysts who covers us downgrades our stock or publishes inaccurate or unfavorable research about our business, our stock price may decline. If one or more of these analysts ceases coverage of our company or fails to publish reports on us regularly, demand for our stock could decrease, which might cause our stock price and trading volume to decline.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

As of December 31, 2022, we lease one facility in Pretoria, South Africa for office and laboratory space. The lease commenced in October 2021 with the initial term set to expire in December 2030. We believe that our current facilities are sufficient to meet our current and near-term needs and that, should it be needed, suitable additional space will be available.

Item 3. Legal Proceedings

We are not party to any material legal matters or claims. In the future, we may become party to legal matters and claims arising in the ordinary course of business. We cannot predict the outcome of any such legal matters or claims, and despite the potential outcomes, the existence thereof may have an adverse impact on us because of defense and settlement costs, diversion of management resources and other factors.

Item 4. Mine Safety Disclosures

Not applicable.

PART II

Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

Market Information and Holders of Record

Our common stock has been listed on the Nasdaq Global Select Market under the symbol "ASPI" since November 10, 2022.

As of March 29, 2023, we had 55 record holders of record of our common stock. The actual number of shareholders is greater than this number of record holders and includes shareholders who are beneficial owners but whose shares are held in street name by brokers and other nominees. The number of holders of record also does not include shareholders whose shares may be held in trust by other entities.

Dividends

We have never declared or paid a cash dividend on our capital stock. We currently intend to retain any future earnings and do not expect to pay any dividends in the foreseeable future. Any future determinations to pay cash dividends will be made at the discretion of our board of directors, subject to applicable laws, and will depend on a number of factors, including our financial condition, results of operations, capital requirements, contractual restrictions, general business conditions, and any other factors that our board may deem relevant.

Securities Authorized for Issuance under Equity Compensation Plans

Information regarding the Securities Authorized for Issuance under our Equity Compensation Plans will be included in an amendment to this Annual Report in Form 10-K or incorporated by reference from our definitive proxy statement to be filed pursuant to Rule 14A.

Stock Performance Graph

As a smaller reporting company, we are not required to provide the information requested by this item pursuant to Item 201 of Regulation S-K.

Unregistered Sales of Equity Securities and Use of Proceeds

Unregistered sales of equity securities

Set forth below is information regarding unregistered securities issued by us since our inception on September 13, 2021. Also included is the consideration received by us for such securities and information relating to the section of the Securities Act, or rule of the SEC, under which exemption from registration was claimed. None of the following transactions involved any underwriters, underwriting discounts or commissions, or any public offering, except as noted in paragraph 6 below.

1. On September 13, 2021, we closed stock purchase agreements with our founders to issue an aggregate of 2,000,000 shares of common stock in consideration for the purchasers' transfer to the company of all of the purchaser's rights in certain business concepts and technology.
2. On September 15, 2021, we issued two consultants each a warrant to purchase 3,615,411 shares of common stock, with an exercise price per share of $0.01 and a term of two (2) years, for services. On January 28, 2022, the holders of the warrants exercised their warrants, and the company issued an aggregate of 7,194,847 shares of common stock.
3. In late September 2021, we sold and issued an aggregate of 8,300,000 shares of common stock to a total of 9 accredited investors at a purchase price of $0.25 per share, for an aggregate purchase price of $2,075,000.

4. In October 2021 through early November 2021, we sold and issued an aggregate of 6,800,000 shares of common stock to a total of 14 accredited investors at a purchase price of $0.25 per share, for an aggregate purchase price of $1,700,000.
5. In October 2021, we issued an aggregate of 1,500,000 shares of our common stock pursuant to a performance share award grant notice to Paul Mann, our Chairman, Chief Executive Officer and director, as consideration for his services to us. In addition, in October 2021, we sold and issued 600,000 shares of our common stock pursuant to a restricted stock award grant notice to a consultant (an entity owned by Sergey Vasnetsov, our director), as consideration for services to us as contemplated by the advisory agreement with us.
6. In late November 2021 through April 2022, we sold and issued an aggregate of 3,012,280 shares of common stock to a total of 74 accredited investors at a purchase price of $2.00 per share, for an aggregate purchase price of $6,024,560. Revere Securities LLC acted as placement agent in connection with such offering of shares of our common stock and in connection therewith we agreed to pay to Revere Securities LLC (i) a cash fee equal to 8.0% of the aggregate gross proceeds raised in such offering and (ii) 57,250 shares of our common stock.
7. In July 2022, we issued (i) 600,000 shares of our common stock pursuant to a restricted stock award grant notice to a consultant (an entity owned by Sergey Vasnetsov, our director), as consideration for services to us as contemplated by the advisory agreement (as amended) with us and (ii) 100,000 shares of our common stock pursuant to a restricted stock award grant notice to a consultant as consideration for services to us.
8. In October 2022, we issued to our executive officers, directors and consultants 3,000,000 shares of restricted stock that we executed on November 15, 2022 upon consummation of our IPO.
9. From September 13, 2021, through July 2022, we granted stock options under our 2021 equity incentive plan, as amended (the Prior Plan), to purchase up to an aggregate of 3,151,000 shares of our common stock to our employees, directors and consultants, at a weighted-average exercise price of $1.78 per share.
10. On March 14, 2023, we entered into a Securities Purchase Agreement (the "Purchase Agreement") with a single institutional investor (the "Purchaser"), pursuant to which we issued, in a private placement (the "Offering"), an aggregate of (i) 3,164,557 shares (the "Shares") of our common stock, par value $0.01 per share (the "Common Stock"); and (ii) warrants (the "Common Warrants") to purchase up to an aggregate of 3,164,557 shares of Common Stock (the "Common Warrant Shares"), at a purchase price of $1.58 per one (1) share of Common Stock and accompanying Common Warrant, for a total gross proceeds of approximately $5.0 million, before deducting placement agent fees and other offering expenses. The Common Warrants have an exercise price of $1.75 per share, are exercisable on or after September 17, 2023 and will expire on September 18, 2028. The Offering closed on March 17, 2023 (the "Closing"). We engaged H.C. Wainwright & Co., LLC (the "Placement Agent") to act as its exclusive placement agent in connection with the Offering, pursuant to the engagement letter (the "Engagement Letter"), dated as of February 15, 2023, between the Company and the Placement Agent. Pursuant to the Engagement Letter, we paid the Placement Agent (i) a total cash fee equal to 7.0% of the aggregate gross proceeds of the Offering; (ii) a management fee of 1.0% of the aggregate gross proceeds of the Offering; and (iii) reimbursement of certain expenses. In addition, we issued to the Placement Agent, or its designees warrants (the "PA Warrants") to purchase up to 221,519 shares of Common Stock (the "PA Warrant Shares") at an exercise price of $1.975 per share. The PA Warrants are exercisable on or after September 17, 2023, and will expire on September 18, 2028.
11. On March 15, 2023, Tianne Holdings (Pty) Ltd, a company controlled by Henrik Strydom, our director, and Carlein Investments (Pty) Ltd, a company controlled by Einar Ronander, a consultant to the Company, each exchanged 1,500,000 shares of our common stock which they held for 1,250 shares of preferred stock of our newly formed subsidiary, Enlightened Isotopes (Pty) Ltd. The 3 million shares were cancelled pursuant to the exchange.

None of the foregoing transactions involved any underwriters, underwriting discounts or commissions, or our public offering, except as noted in paragraph 6 above.

Except as described in the following paragraph, we believe that the transactions described above were exempt from registration under the Securities Act in reliance on Section 4(a)(2) of the Securities Act (and Regulation D promulgated thereunder). The recipients of the securities in each of these transactions represented their intentions to acquire the securities for investment only and not with a view to or for sale in connection with any distribution thereof. The sales of these securities were made without any general solicitation or advertising.

The offers, sales and issuances of the securities described in paragraphs (2), (5), (7) and (8) were deemed to be exempt from registration under the Securities Act in reliance on either Rule 701 in that the transactions were under compensatory benefit plans and contracts relating to compensation as provided under Rule 701 or Section 4(a)(2) in that the issuance of securities to the accredited investors did not involve a public offering. The recipients of such securities were our employees, directors or bona fide consultants and received the securities under the Prior Plan.

Use of proceeds from registered securities

On November 15, 2022, we completed our IPO, in which we issued and sold 1,250,000 shares of common stock, $0.01 par value per share at a price to the public of $4.00 per share. The offer and sale of the shares in the IPO was registered under the Securities Act pursuant to a registration statement on Form S-1 (File No. 333-267392), which was filed with the SEC on September 12, 2022 and amended subsequently and declared effective on November 9, 2022. The underwriter of the offering Revere Securities, LLC. The Form S-1 registered 2,057,500 shares of common stock held by selling stockholders. We did not receive proceeds from the sale of the shares by the selling stockholders.

We raised approximately $3.8 million in net proceeds after deducting underwriting discounts and commissions and other offering expenses of $1.2 million. No offering expenses were paid directly or indirectly to any of our directors of officers (or their associates) or persons owning ten percent or more of any class of our equity securities or to any other affiliates.

Through December 31, 2022, we have used approximately $1.5 million of the net proceeds from our IPO for matters described in our final IPO prospectus filed with the SEC on November 14, 2022, or our IPO prospectus. There has been no material change in the planned use of proceeds from our IPO, as described in our IPO prospectus.

Repurchases of equity securities by the issuer

None.

Item 6. Selected Financial Data

Not applicable – please see Item 8 Financial Statements and Supplementary Data

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

The following discussion and analysis of financial condition and results of operations is provided to enhance the understanding of, and should be read in conjunction with Part I, Item I, "Business" and Item 8, 'Financial Statements and Supplementary Data." For information on risks and uncertainties related to our business that may make past performance not indicative of future results or cause actual results to differ materially from any forward-looking statements, see "Special Note Regarding Forward-Looking Statements," and Part I, Item 1A, 'Risk Factors."

Overview

We are a pre-commercial stage advanced materials company dedicated to the development of technology and processes that, if successful, will allow for the enrichment of natural isotopes into higher concentration products, which could be used in several industries. We were incorporated in Delaware in September 2021 to acquire assets and license intellectual property rights related to the production of isotopes using Aerodynamic Separation Process ("ASP technology"), originally developed and licensed to us by Klydon Proprietary Ltd ("Klydon"). We have an exclusive license to use the ASP technology for the production, distribution, marketing and sale of all isotopes. Our initial focus is on the production and commercialization of enriched Carbon-14 ("C-14"), Molybdenum-100 ("Mo-100") and Silicon-28 ("Si-28"). Klydon has agreed to provide us a first commercial-scale isotope enrichment plant located in South Africa We also intend to use the ASP technology to produce enriched Uranium-235 ("U-235"). We believe that the U-235 we may develop using the ASP technology may be commercialized as a nuclear fuel component for use in the new generation of HALEU-fueled small modular reactors that are now under development for commercial and government uses.

We operate principally through subsidiaries: ASP Isotopes Guernsey Limited (the holding company of ASP Isotopes South Africa (Proprietary) Limited), which will be focused on the development and commercialization of high value, low volume isotopes for highly specialized end markets (such as C-14, Mo-100 and Si-28); Enriched Energy LLC, which will be focused on the development and commercialization of uranium for the nuclear energy market; and ASP Isotopes UK Ltd, which is the licensee of the ASP technology under the exclusive license agreement with Klydon.

On November 15, 2022, we completed an IPO of our common stock and issued and sold 1,250,000 shares of common stock at a public offering price of $4.00 per share, resulting in net proceeds of $3.8 million after deducting underwriting discounts and commissions and offering expenses.

Acquisition of Assets and Agreements with Klydon

To date, we have purchased certain assets of Molybdos Proprietary Limited, a South Africa company (Molybdos), and entered into a number of agreements with Klydon (Pty) Limited, a South Africa company (Klydon). Below is a summary of the key terms for our licenses and other agreements with Klydon.

Acquisition of Molybdos Assets. On September 30, 2021, our subsidiary, ASP Isotopes South Africa (Proprietary) Limited ("ASP South Africa"), participated in and was declared the winner of a competitive auction process under Section 45 of the South Africa Consumer Protection Act, 2008 related to the sale and assignment of the assets of Molybdos (the "Molybdos Business Rescue Auction"). On October 12, 2021, ASP South Africa acquired the assets of Molybdos for ZAR 11,000,000 (which at the then current exchange rate was approximately $734,000), plus value added tax (VAT) levied by the government of South Africa at the rate of 15% and auctioneers' commission at the rate of 10%.

Acquisition of Silicon-28 Plant Assets. On July 26, 2022, we acquired assets comprising a dormant Silicon-28 aerodynamic separation processing plant from Klydon for ZAR 6,000,000 (which at the then current exchange rate was approximately $364,000), which will be payable to Klydon on the later of 180 days of the acquisition and the date on which the assets generate any revenues of any nature.

Exclusive Mo-100 License (superseded and replaced by new license (see "Omnibus Klydon License" below)). On September 30, 2021, ASP South Africa, as licensee, entered into a license with Klydon, as licensor, pursuant to which ASP South Africa acquired from Klydon an exclusive license to use, subcontract and sublicense certain intellectual property rights relating to the ASP technology for the development and/or otherwise disposing of the ASP technology and production, distribution, marketing and or sale of Mo-100 isotope produced using the ASP technology (as amended on June 8, 2022, the "Mo-100 license"). The intellectual property rights granted to us through the Mo-100 license included all existing and/or future proprietary rights of Klydon relating to the ASP technology, whether or not such rights have been registered, including the copyright, designs, know-how, patents and trademarks (although Klydon currently has no such patents, patent applications or copyrights). The exclusive Mo-100 license was royalty-free, had a term of 999 years and was for the global development of the ASP Technology and production of the Mo-100 Isotope and global for the distribution, marketing and sale of the Mo-100 Isotope. No upfront or other payment was made or is owed in connection with the Mo-100 license. Klydon had the right to terminate the exclusivity of the Mo-100 license in the event that the licensee ceased carrying on activities of Mo-100 enrichment for a period longer than 24 consecutive months. Klydon had no other rights to terminate the Mo-100 license. Effective July 26, 2022, the parties agreed to terminate the Mo-100 license, which was superseded and replaced by a new license agreement (described under the heading "Omnibus Klydon License" below).

Exclusive U-235 License (superseded and replaced by new license (see "Omnibus Klydon License" below)). On January 25, 2022, ASP South Africa, as licensee, entered into a license with Klydon, as licensor, pursuant to which ASP South Africa acquired from Klydon an exclusive license to use, subcontract and sublicense certain intellectual property rights relating to the ASP technology for the development and/or otherwise disposing of the ASP technology and production, distribution, marketing and or sale of U-235 produced using the ASP (as so amended, the "U-235 license"). The intellectual property rights granted to us through the U-235 license included all existing and/or future proprietary rights of Klydon relating to the ASP technology, whether or not such rights have been registered, including the copyright, designs, know-how, patents and trademarks (although Klydon currently has no such patents, patent applications or copyrights). The exclusive U-235 license had a term of 999 years and was for the global development of the ASP technology and production of U-235 and global for the distribution, marketing and sale of U-235. In connection with the U-235 license we made an upfront payment of $100,000 and agreed to pay certain royalties (the greater of $50 per k.g. of U-235 and 10% of profits) and a 33% sublicensing revenue share of any cash consideration we may receive for any sublicenses we may grant. Klydon had the right to terminate the exclusivity of the U-235 license in the event that the licensee ceased carrying on activities of U-235 enrichment for a period longer than 24 consecutive months. Klydon had no other rights to terminate the U-235 license. Effective July 26, 2022, the parties agreed to terminate the U-235 license, which was superseded and replaced by a new license agreement (described under the heading "Omnibus Klydon License" below).

Omnibus Klydon License. On July 26, 2022, ASP Isotopes UK Ltd, as licensee, entered into a license agreement with Klydon, as licensor, pursuant to which ASP Isotopes UK Ltd acquired from Klydon an exclusive license to use, develop, modify, improve, subcontract and sublicense certain intellectual property rights relating to the ASP technology for the production, distribution, marketing and sale of all isotopes produced using the ASP technology (the "Klydon license agreement"). The intellectual property rights granted to us through the Klydon license agreement include all existing and/or future proprietary rights of Klydon relating to the ASP technology, whether or not such rights have been registered, including the copyright, designs, know-how, patents and trademarks (although Klydon currently has no such patents, patent applications or copyrights). The Klydon license agreement superseded and replaced the Mo-100 license and U-235 license described above. The Klydon license agreement is royalty-free, has a term of 999 years and is worldwide for the development of the ASP technology and the distribution, marketing and sale of isotopes. Future production of isotopes is limited to member countries of the Nuclear Suppliers Group. In connection with the Klydon license agreement, we agreed to make an upfront payment of $100,000 (to be included within the payments we made under the Turnkey Contract (described below) and deferred payments of $300,000 over 24 months. Klydon has the right to terminate the exclusivity of the Klydon license agreement in the event that the licensee ceases to carry on activities related to isotope enrichment for a period longer than 24 consecutive months.

Turnkey Contract. On November 1, 2021, ASP South Africa and Klydon, as the contractor, entered into a contract under which Klydon has been appointed to supply to ASP South Africa a complete turnkey isotope enrichment plant (the "Turnkey Contract"). The activities to be undertaken or performed by Klydon include: taking control of the assets acquired in the Molybdos Business Rescue Auction; the design of an isotope enrichment facility; the supply of components, equipment and labor required for the construction; the installation, testing and commissioning of the isotope enrichment plant; securing all required approvals, regulatory authorizations and other required consents for the operation of the plant; providing training to local ASP Isotopes South Africa (Proprietary) Limited personnel to enable them to operate the plant going forward; and providing warranties in relation to the performance targets of the plant which are required to be met. Klydon was responsible for liaising with the relevant South African authorities, including the South African Non Proliferation Council, the Nuclear Suppliers Group and International Atomic Energy Agency to ensure that the Turnkey Contract and the isotope enrichment plant are compliant with international laws and guidelines.

Klydon performed a portion of the services required under the Turnkey Contract; however, services were incomplete and many of the services were not completed within the time frame required. As a result, Klydon and ASP South Africa entered into an Acknowledgement of Debt Agreement dated November 30, 2022, whereby Klydon (i) agreed to pledge its assets (the "Pledged Assets") to ASP South Africa to secure its performance of the Turnkey Contract by December 31, 2022, and (ii) acknowledged that ASP South Africa would suffer damages in the amount of $6,050,000 ("Damage Amount") should it fail to perform. Under the Acknowledgement of Debt Agreement, the Pledged Assets would serve as collateral for Klydon's obligation to pay the Damage Amount should Klydon fail to perform. In connection therewith, also on November 30, 2022, ASP South Africa and Klydon entered into a Deed of Security Agreement whereby, if Klydon failed to complete its obligations under the Turnkey Contract by December 31, 2022, all of Klydon's rights of any nature to and interests of any nature in the Pledged Assets would be transferred to ASP South Africa. Klydon failed to complete its obligations under the Turnkey Contract by December 31, 2022, and the Company plans to perfect its interests in the assets as soon as practicable.

Letter of Intent for Klydon Shares or Assets. On September 30, 2021, ASP South Africa entered into a letter of intent with Klydon and Isotope Separation Technology (Pty) Ltd (Klydon's largest shareholder which is owned by Dr Ronander and Dr Strydom) with respect to the acquisition of all of the outstanding shares or substantially all of the assets of Klydon. Under the letter of intent (as amended), Klydon has agreed to negotiate with us on an exclusive basis. We are in the process of preparing, and negotiating with Klydon, the share purchase agreement and related agreements with respect to the Klydon acquisition, but such transaction documents are not yet in agreed form and as of the date hereof, several issues remain open that, if not resolved, will prevent us from entering into a definitive agreement with respect to the Klydon acquisition. In addition, the resolution of the Acknowledgement of Debt Agreement pertaining to the non performance by Klydon under the Turnkey Contract may significantly alter the outcome of these negotiations. We do not expect the timing or success of the Klydon acquisition to have a material effect on either our business or our financial results in the future because of the existing commercial agreements that we have with Klydon. We believe that the Klydon license agreement provides us with the requisite intellectual property rights and personnel (through Klydon's workforce) that we need to conduct our business as currently proposed to be conducted.

Other Commercial Agreements

Below is a summary of the key terms of our other commercial agreements.

Lease for Molybdenum Processing Plant. On October 12, 2021, ASP South Africa entered into an agreement of lease with the landlord of the facility located at 33 Eland Street, Koedoespoort Industrial, Pretoria where Klydon and its scientists and engineers will operate on our behalf the Molybdenum processing plant where gaseous Molybdenum compound will be treated (which process comprises several stages of compression and expansion during which the product is purified). The term of the lease ends on December 31, 2030.

Political Risk Insurance Policy with Optio Group. On October 25, 2021, ASP Guernsey entered into a contract of insurance to cover against political risk and expropriation, to off-set the risk of events detrimental to the company occurring in the Republic of South Africa for a period of three years. The insurer is Optio Group Limited which is 100% underwritten by one or more syndicates at Lloyd's of London. The specific risks covered in the policy are: (i) permanent and total abandonment of operations, (ii) deprivation of assets or shareholding, (iii) physical damage due to political violence, (iv) non-transfer or inconvertibility, (v) business interruption, (vi) non-honouring of arbitration award, and (vii) crisis management support. The limit of cover is equal to or in excess of the projected amount of investment required to complete the initial stage of the first planned Molybdenum enrichment plant. The limit of cover is capable of being increased and extended by mutual agreement with the insurer.

Components of Results of Operations

Operating Expenses

Our operating expenses consist of (i) research and development expenses and (ii) general and administrative expenses.

Research and Development

Our research and development expenses consist primarily of direct and indirect costs incurred in connection with the development activities for our future isotopes.

Direct costs include:

- external research and development expenses incurred under the Turnkey Contract; and
- costs related to designing the development processes of isotope production.

Indirect costs include:

- personnel-related costs, which include salaries, payroll taxes, employee benefits, and other employee-related costs, including stock-based compensation, for personnel engaged in research and development functions; and
- facilities and other various expenses.

Research and development expenses are recognized as incurred and payments made prior to the receipt of goods or services to be used in research and development are capitalized until the goods or services are received.

We expect that our research and development expenses will increase substantially for the foreseeable future as we continue the development of our future isotopes. We cannot determine with certainty the timing of initiation, the duration or the completion costs of development activities. Actual development timelines, the probability of success and development costs can differ materially from expectations.

We will need to raise substantial additional capital in the future. In addition, we cannot forecast which future isotopes may be subject to future collaborations, when such arrangements will be secured, if at all, and to what degree such arrangements would affect our development plans and capital requirements.

Our research and development expenses may vary significantly based on a variety of factors, such as:

- the scope, rate of progress, expense and results of our development activities;
- the phase of development of our future isotopes;
- the timing, receipt, and terms of any approvals from applicable regulatory authorities including the FDA and foreign regulatory authorities;
- significant and changing government regulation and regulatory guidance;
- the cost and timing of designing the development processes of isotope production;
- the extent to which we establish additional strategic collaborations or other arrangements; and
- the impact of any business interruptions to our operations or to those of the third parties with whom we work, including Klydon, particularly in light of the current COVID-19 pandemic environment.

A change in the outcome of any of these variables with respect to the development of any of our future isotopes could significantly change the costs and timing associated with the development of that future isotope.

General and Administrative

General and administrative expenses consist primarily of personnel-related costs, which include salaries, payroll taxes, employee benefits, and other employee-related costs, including stock-based compensation, for personnel in executive, finance and other administrative functions. Other significant costs include legal fees relating to corporate matters, professional fees for accounting and consulting services and facility-related costs.

We expect that our ongoing general and administrative expenses will increase substantially for the foreseeable future to support our increased research and development activities and increased costs of operating as a public company and in building our internal resources. These increased costs will include increased expenses related to audit, legal, regulatory and tax-related services associated with maintaining compliance with exchange listing and SEC requirements, director and officer insurance premiums and investor and public relations costs associated with operating as a public company.

Results of operations

Comparison of the year ended December 31, 2022 and the period from September 13, 2021 (Inception) through December 31, 2021

	Year ended December 31, 2022	Period from September 13, 2021 (Inception) through December 31, 2021
Operating expenses:		
Research and development	$ 1,273,536	$ 41,610
General and administrative	3,825,512	2,566,432
Total operating expenses	5,099,048	2,608,042
Other income:		
Interest income	3,382	115
Change in fair value of share liability	150,527	—
Total other income	153,909	115
Net loss	$ (4,945,139)	$ (2,607,927)

Research and development expenses

	Year ended December 31, 2022	Period from September 13, 2021 (Inception) through December 31, 2021
Direct costs:		
Mo-100	$ 6,645	$ 9,360
Indirect costs:		
Personnel-related costs	429,270	—
License fees	495,503	—
Consulting, facility and other expenses	342,118	32,250
Total research and development expenses	$ 1,273,536	$ 41,610

Research and development expenses were $1,273,536 for the year ended December 31, 2022. These expenses include $6,645 in consulting expenses related to advancing development activities for Mo-100, $429,270 of personnel-related costs, including $201,270 in stock-based compensation, $495,503 in license fees and $342,118 in consulting, facility and other expenses.

Research and development expenses were $41,610 for the period from September 13, 2021 (Inception) through December 31, 2021. These expenses include $9,360 in consulting expenses related to advancing development activities for Mo-100 and $32,250 in facility and related expenses.

General and administrative expenses

General and administrative expenses were $3,825,512 for the year ended December 31, 2022. These expenses include $560,789 of personnel-related costs, $1,798,043 in stock-based compensation, $1,010,187 of professional services and legal related fees and $456,493 in facility and other corporate expenses.

General and administrative expenses were $2,566,432 for the period from September 13, 2021 (Inception) through December 31, 2021. These expenses include $1,735,841 of expenses for past services for the issuance of warrants to purchase common shares, $513,227 in stock-based compensation, $127,500 of personnel-related costs, $137,209 of professional services and legal related fees, $21,025 in facility and related expenses and $31,630 in other corporate expenses.

Other income and expense

Other income for the year ended December 31, 2022 was $153,909, which includes a $150,527 change in the fair value of the share liability related to the shares issuable to a placement agent.

Liquidity and capital resources

Sources of Liquidity

We have incurred net losses and negative cash flows from operations since our inception, and we expect to continue to incur significant and increasing net losses for the foreseeable future. We have principally financed our operations to date through private placements of our common stock and, most recently, our IPO and private placement. On November 15, 2022, we completed an IPO of our common stock and issued and sold 1,250,000 shares of common stock at a public offering price of $4.00 per share, resulting in net proceeds of $3.8 million after deducting underwriting discounts and commissions and estimated offering expenses. In March 2023, we received gross proceeds of $5.0 million through the issuance of 3,164,557 shares of our common stock at a purchase price of $1.58 per share and warrants to purchase up to an aggregate of 3,164,557 shares of our common stock at a purchase price of $1.58 per share with an exercise price of $1.75 per share.

As of December 31, 2022, we had cash of $2.4 million. We do not have any isotopes approved for sale, we have not generated any revenue from the sale of isotopes, and our ability to generate product revenue sufficient to achieve profitability will depend on the successful development and eventual commercialization of one or more of our current or future isotopes.

Future Funding Requirements

Based on our current operating plan, we estimate that our existing cash, together with the net proceeds from our IPO, will not be sufficient to fund our operating expenses and capital expenditure requirements through at least the next 12 months from the date the financial statements are issued. However, our forecast of the period of time through which our financial resources will be adequate to support our operations is a forward-looking statement that involves risks and uncertainties, and actual results could vary materially. We have based this estimate on assumptions that may prove to be wrong, and we could deplete our capital resources sooner than we expect. Additionally, the process of developing isotopes is costly, and the timing of progress and expenses in these development activities is uncertain.

Our future capital requirements will depend on many factors, including:

- the type, number, scope, progress, expansions, results, costs and timing of, our development activities for our future isotopes;
- the outcome, timing and costs of regulatory review of our future isotopes;
- the costs and timing of manufacturing for our future isotopes;
- our efforts to enhance operational systems and hire additional personnel to satisfy our obligations as a public company, including enhanced internal controls over financial reporting;
- the costs associated with hiring additional personnel and consultants as our preclinical and clinical activities increase;
- the costs and timing of establishing or securing sales and marketing and distribution capabilities, whether alone or with third parties, to commercialize future isotopes for which we may obtain regulatory approval, if any;
- our ability to achieve sufficient market acceptance, coverage and adequate reimbursement from third-party payors and adequate market share and revenue for any approved products;
- the terms and timing of establishing and maintaining collaborations, licenses and other similar arrangements;
- the costs of obtaining, expanding, maintaining and enforcing our patent and other intellectual property rights;
- costs associated with any products or technologies that we may in-license or acquire; and
- if we experience any delays or encounter any issues with any of the above, including the risk of each of which may be exacerbated by the ongoing COVID-19 pandemic.

Developing isotopes is a time-consuming, expensive and uncertain process that takes years to complete, and we may never achieve the necessary results required or obtain applicable regulatory approval for any isotopes or generate revenue from the sale of any future isotopes (assuming applicable regulatory approval is received). In addition, our future isotopes (assuming applicable regulatory approval is received) may not achieve commercial success. Our commercial revenues, if any, will be derived from sales of isotopes that we do not expect to be commercially available in substantial quantities until at least 2024. If we receive permits and licenses to enrich U-235 (which in itself is highly uncertain), we do not expect U-235 to be commercially available for at least several years, if ever. As a result, we may need substantial additional financing to support our continuing operations and further the development of and commercialization of our future isotopes.

Until such time as we can generate significant revenue from sales of our future isotopes, if ever, we expect to finance our cash needs through public or private equity or debt financings or other capital sources, including potential collaborations, licenses and other similar arrangements. However, we may be unable to raise additional funds or enter into such other arrangements when needed on favorable terms or at all. Our ability to raise additional funds may be adversely impacted by potential worsening global economic conditions and the recent disruptions to, and volatility in, the credit and financial markets in the United States and worldwide resulting from the ongoing COVID-19 pandemic and otherwise. To the extent that we raise additional capital through the sale of equity or convertible debt securities, the ownership interest of our stockholders will be or could be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect the rights of our common stockholders. Debt financing and equity financing, if available, may involve agreements that include covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making capital expenditures or declaring dividends. If we raise funds through collaborations, or other similar arrangements with third parties, we may have to relinquish valuable rights to our future isotopes, future revenue streams or research programs or may have to grant licenses on terms that may not be favorable to us and/or may reduce the value of our common stock. If we are unable to raise additional funds through equity or debt financings when needed, we may be required to delay, limit, reduce or terminate our product development or future commercialization efforts or grant rights to develop and market our future isotopes even if we would otherwise prefer to develop and market such isotopes ourselves.

Cash flows

The following table summarizes our sources and uses of cash for each of the periods presented:

	Year ended December 31, 2022	Period from September 13, 2021 (Inception) through December 31, 2021
Net cash provided by (used in):		
Operating activities	$ (2,939,893)	$ (577,692)
Investing activities	(4,473,164)	(2,988,210)
Financing activities	6,641,052	6,500,900
Net (decrease) increase in cash and cash equivalents	$ (772,005)	$ 2,934,998

Operating Activities.

Net cash used in operating activities was $2,939,893 for the year ended December 31, 2022 and was primarily due to our net loss of $4,945,139, adjusted for stock-based compensation expense of $1,999,313, amortization of right-of-use asset of $72,570, issuance of common stock to a consultant with a fair value of $50,000 and change in fair value of share liability of $150,527, partially offset by a $33,890 change in our operating assets and liabilities.

Net cash used in operating activities was $577,692 for the period from September 13, 2021 (inception) through December 31, 2021, and was primarily due to our net loss of $2,607,927, adjusted for stock-based compensation expense of $513,227, the issuance of warrants to purchase common stock of $1,735,841 and a $218,833 change in our operating assets and liabilities.

Investing activities.

Net cash used in investing activities was $4,473,164 and $2,988,210 for the year ended December 31, 2022 and the period from September 13, 2021 (inception) through December 31, 2021, respectively, and was comprised of construction in progress.

Financing Activities.

Net cash provided by financing activities was $6,641,052 for the year ended December 31, 2022 and was comprised primarily of net proceeds of $3,790,504 from the sale and issuance of 1,250,000 shares of our common stock in our IPO, net proceeds of $2,863,595 from the sale and issuance of 1,559,780 shares of our common stock prior to our IPO and the repayment of notes payable of $13,046.

Net cash provided by financing activities was $6,500,900 for the period from September 13, 2021 (inception) through December 31, 2021 and was comprised primarily of net proceeds of $6,454,000 from the sale and issuance of 20,652,500 shares of our common stock in 2021.

Contractual obligations and commitments

We lease our research and development facility in Pretoria, South Africa under a lease with base monthly rent payment of approximately $8,000 with a term expiring on December 31, 2030.

As of December 31, 2022, we had commitments of approximately $5.6 million with Klydon for the ongoing development activities under the Turnkey Contract due within approximately 15 months. Klydon performed a portion of the services required under the Turnkey Contract; however, services were incomplete and many of the services were not completed within the time frame required. As a result, Klydon and ASP South Africa entered into an Acknowledgement of Debt Agreement dated November 30, 2022, whereby Klydon (i) agreed to pledge its assets (the "Pledged Assets") to ASP South Africa to secure its performance of the Turnkey Contract by December 31, 2022, and (ii) acknowledged that ASP South Africa would suffer damages in the amount of $6,050,000 ("Damage Amount") should it fail to perform. Under the Acknowledgement of Debt Agreement, the Pledged Assets would serve as collateral for Klydon's obligation to pay the Damage Amount should Klydon fail to perform. In connection therewith, also on November 30, 2022, ASP South Africa and Klydon entered into a Deed of Security Agreement whereby, if Klydon failed to complete its obligations under the Turnkey Contract by December 31, 2022, all of Klydon's rights of any nature to and interests of any nature in the Pledged Assets would be transferred to ASP South Africa. Klydon failed to complete its obligations under the Turnkey Contract by December 31, 2022, and the Company plans to perfect its interests in the assets as soon as practicable.

In addition, we enter into contracts in the normal course of business with vendors for services and products for operating purposes. These contracts do not contain any minimum purchase commitments and generally provide for termination after a notice period and, therefore, are not considered long-term contractual obligations. Payments due upon cancellation consist only of payments for services provided and expenses incurred up to the date of cancellation.

Off-balance sheet arrangements

We did not have during the periods presented, and we do not currently have, any off-balance sheet arrangements, as defined in the rules and regulations of the SEC.

Recent accounting pronouncements

See Note 2 to our consolidated financial statements which discusses new accounting pronouncements

Item 7A. Quantitative and qualitative disclosures about market risk

Interest Rate Risk

As of December 31, 2022 and 2021, our cash consists of cash in readily available checking accounts. We do not hold any short-term investments. As a result, the fair value of our portfolio is relatively insensitive to interest rate changes. As of December 31, 2022 and 2021, we had no bank debt outstanding and are therefore not exposed to interest rate risk with respect to debt. We believe a hypothetical 100 basis point increase or decrease in interest rates during the period presented would not have had a material impact on our financial results.

Foreign Currency Exchange Rate Risk

Our expenses are generally denominated in U.S. dollars but our operations are currently primarily located outside the United States and we have entered into a number of contracts with vendors that are denominated in foreign currencies. We are subject to foreign currency transaction gains or losses on our contracts denominated in foreign currencies. To date, foreign currency transaction gains and losses have not been material to our financial statements, and we have not had a formal hedging program with respect to foreign currency. We believe a hypothetical 100 basis point increase or decrease in exchange rates during the period presented would not have had a material impact on our financial results.

Effects of Inflation

Inflation generally affects us by increasing our cost of labor and research and development costs. We do not believe that inflation and changing prices had a significant impact on our results of operations for the period presented herein.

Item 8. Financial Statements and Supplementary Data

ASP Isotopes Inc.
Index to Consolidated Financial Statements

Report of Independent Registered Public Accounting Firm

To the Board of Directors and Stockholders of
ASP Isotopes Inc. and Subsidiaries

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of ASP Isotopes Inc. and Subsidiaries (the "Company") as of December 31, 2022 and 2021, and the related consolidated statements of operations and comprehensive loss, changes in stockholders' equity, and cash flows for the year ended December 31, 2022 and the period from September 13, 2021 (inception) through December 31, 2021, and the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2022 and 2021, and the results of their operations and their cash flows for the year ended December 31, 2022 and the period from September 13, 2021 (inception) through December 31, 2021, in conformity with accounting principles generally accepted in the United States of America.

Going Concern

The accompanying financial statements have been prepared assuming that the Company will continue as a going concern. As discussed in Note 1 to the financial statements, the Company has incurred recurring operating losses and negative cash flows from operating activities, which raises substantial doubt about its ability to continue as a going concern. Management's plans in regards to these matters are also described in Note 1. The financial statements do not include any adjustments that might result from the outcome of this uncertainty.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audit. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) ("PCAOB") and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audit, we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ EisnerAmper LLP

We have served as the Company's auditor since 2022.

EISNERAMPER LLP
Iselin, New Jersey
March 31, 2023

ASP Isotopes Inc.
Consolidated Balance Sheets

	December 31, 2022	December 31, 2021
Assets		
Current assets:		
Cash	$ 2,389,140	$ 2,953,721
Prepaid expenses and other current assets	913,005	267,562
Total current assets	3,302,145	3,221,283
Property and equipment, net	8,200,595	2,988,210
Operating lease right-of-use asset	853,889	933,145
Other noncurrent assets	139,636	—
Total assets	**$ 12,496,265**	**$ 7,142,638**
Liabilities and stockholders' equity		
Current liabilities:		
Accounts payable	$ 1,354,903	$ 59,679
Accrued expenses	361,246	42,500
Notes payable	33,854	46,900
Operating lease liability – current	45,903	38,072
Share liability	140,455	116,200
Total current liabilities	1,936,361	303,351
Operating lease liability – noncurrent	742,443	841,623
Total liabilities	2,678,804	1,144,974
Commitments and contingencies (Note 6)		
Stockholders' equity		
Preferred stock, $0.01 par value; 10,000,000 shares authorized, no shares issued and outstanding at December 31, 2022 and 2021	—	—
Common stock, $0.01 par value; 500,000,000 shares authorized, 35,907,127 and 20,652,500 shares issued and outstanding at December 31, 2022 and 2021, respectively	359,071	206,525
Additional paid-in capital	16,756,426	8,380,343
Accumulated deficit	(7,553,066)	(2,607,927)
Accumulated other comprehensive income	255,030	18,723
Total stockholders' equity	**9,817,461**	**5,997,664**
Total liabilities and stockholders' equity	**$ 12,496,265**	**$ 7,142,638**

The accompanying notes are an integral part of these consolidated financial statements.

ASP Isotopes Inc.
Consolidated Statements of Operations and Comprehensive Loss

	Year Ended December 31, 2022	For The Period From September 13, 2021 (Inception) Through December 31, 2021
Operating expenses:		
Research and development	$ 1,273,536	$ 41,610
General and administrative	3,825,512	2,566,432
Total operating expenses	5,099,048	2,608,042
Loss from operations	(5,099,048)	(2,608,042)
Other income:		
Change in fair value of share liability	150,527	—
Interest income	3,382	115
Total other income	153,909	115
Net loss	**$ (4,945,139)**	**$ (2,607,927)**
Net loss per share, basic and diluted	**$ (0.18)**	**$ (0.16)**
Weighted average shares of common stock outstanding, basic and diluted	**26,793,748**	**16,246,432**
Other comprehensive loss:		
Net loss	(4,945,139)	(2,607,927)
Foreign currency translation	236,307	18,723
Total comprehensive loss	**$ (4,708,832)**	**$ (2,589,204)**

The accompanying notes are an integral part of these consolidated financial statements.

ASP Isotopes Inc.
Consolidated Statements of Changes in Stockholders' Equity

	Common Stock		Additional Paid-in Capital	Accumulated Other Comprehensive Income	Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount				
Balance at September 13, 2021 (Inception)	**—**	**$ —**	**$ —**	**$ —**	**$ —**	$ —
Issuance of common stock to founders	2,000,000	20,000	480,000	—	—	500,000
Issuance of restricted common stock	2,100,000	21,000	(21,000)	—	—	—
Issuance of common stock, net of issuance costs totaling $342,200	16,552,500	165,525	6,172,275	—	—	6,337,800
Issuance of warrants to purchase common stock	—	—	1,735,841	—	—	1,735,841
Stock-based compensation	—	—	13,227	—	—	13,227
Foreign currency translation	—	—	—	18,723	—	18,723
Net loss	—	—	—	—	(2,607,927)	(2,607,927)
Balance at December 31, 2021	**20,652,500**	**$ 206,525**	**$ 8,380,343**	**$ 18,723**	**$ (2,607,927)**	**$ 5,997,664**
Issuance of common stock, net of issuance costs of $380,747	1,559,780	15,598	2,723,214	—	—	2,738,812
Issuance of common stock in connection with initial public offering, net of issuance costs of $1,209,496	1,250,000	12,500	3,778,004	—	—	3,790,504
Issuance of common stock upon exercise of warrants	7,194,847	71,948	(71,948)	—	—	—
Issuance of restricted shares	5,250,000	52,500	(52,500)	—	—	—
Stock-based compensation	—	—	1,999,313	—	—	1,999,313
Foreign currency translation	—	—	—	236,307	—	236,307
Net loss	—	—	—	—	(4,945,139)	(4,945,139)
Balance at December 31, 2022	**35,907,127**	**$ 359,071**	**$ 16,756,426**	**$ 255,030**	**$ (7,553,066)**	**$ 9,817,461**

The accompanying notes are an integral part of these consolidated financial statements.

ASP Isotopes Inc.
Consolidated Statements of Cash Flows

	Year Ended December 31, 2022	For The Period From September 13, 2021 (Inception) Through December 31, 2021
Cash flows from Operating activities		
Net loss	$ (4,945,139)	$ (2,607,927)
Adjustments to reconcile net loss to cash used in operating activities:		
Stock-based compensation	1,999,313	13,227
Issuance of common stock to founders	—	500,000
Issuance of warrant to purchase common stock	—	1,735,841
Issuance of common stock to consultant	50,000	—
Change in fair value of share liability	(150,527)	—
Change in right-of-use lease asset	72,570	19,376
Changes in operating assets and liabilities:		
Prepaid expenses and other current assets	(671,924)	(267,562)
Other noncurrent assets	(146,435)	—
Accounts payable	570,600	59,679
Accrued expenses	319,048	42,500
Lease liability	(37,399)	(72,826)
Net cash used in operating activities	(2,939,893)	(577,692)
Cash flows from investing activities		
Purchases of property and equipment	(4,473,164)	(2,988,210)
Net cash used in investing activities	(4,473,164)	(2,988,210)
Cash flows from financing Activities		
Proceeds from issuance of common stock	8,119,959	6,680,000
Common stock issuance costs	(1,465,461)	(226,000)
Proceeds from issuance of notes payable	—	46,900
Repayment of notes payable	(13,046)	—
Net cash provided by financing activities	6,641,052	6,500,900
Net change in cash	(772,005)	2,934,998
Effect of exchange rate changes on cash	207,424	18,723
Cash – beginning of period	2,953,721	—
Cash – end of period	**$ 2,389,140**	$ 2,953,721
Supplemental disclosures of non-cash investing and financing activities:		
Share liability for non-cash issuance costs	$ 124,782	$ 116,200
Purchase of property and equipment included in accounts payable	$ 745,628	$ —
Right-of-use assets obtained in exchange for lease liability	$ —	$ 952,521

The accompanying notes are an integral part of these consolidated financial statements.

1. Organization

Description of Business

ASP Isotopes Inc. was incorporated in the state of Delaware on September 13, 2021 and has its principal operations in Boca Raton, Florida. ASP Isotopes Inc.'s subsidiary, ASP Isotopes Holdings Limited ("ASP Guernsey"), has its principal operations in Guernsey. ASP Guernsey's subsidiary, ASP Isotopes Holdings South Africa Proprietary Limited ("ASP South Africa"), has its principal operations in South Africa. ASP Isotopes UK Ltd, a wholly-owned subsidiary of the Company, was incorporated in July 2022. Enriched Energy, LLC, a wholly-owned subsidiary of the Company, was incorporated in January 2022. ASP Isotopes Inc. and its subsidiaries are collectively referred to as "the Company" throughout these consolidated statements.

The Company is a pre-commercial stage advanced materials company dedicated to the development of technology and processes that, if successful, will allow for the enrichment of natural isotopes into higher concentration products, which could be used in several industries. The Company has an exclusive license to use proprietary technology, the Aerodynamic Separation Process ("ASP technology"), originally developed and licensed to the Company by Klydon Proprietary Ltd ("Klydon"), for the production, distribution, marketing and sale of all isotopes. The Company's initial focus is on the production and commercialization of enriched Carbon-14 ("C-14"), Molybdenum-100 ("Mo-100") and Silicon-28 ("Si-28"). Klydon has agreed to provide the Company a first commercial-scale isotope enrichment plant located in South Africa. The Company believes the C-14 it may develop using the ASP technology may be used in the development of new pharmaceuticals and agrochemicals. The Company believes that the Mo-100 it may develop using the ASP technology has significant potential advantages for use in the preparation of nuclear imaging agents by radiopharmacies and others in the medical industry. The Company believes the Si-28 it may develop using the ASP technology may be used to develop advanced semiconductors and in quantum computing.

The Company also intends to use the ASP technology to produce enriched Uranium-235 ("U-235"). The Company believes that the U-235 it may develop using the ASP technology may be commercialized as a nuclear fuel component for use in the new generation of HALEU-fueled small modular reactors that are now under development for commercial and government uses. In addition, the Company is considering future development of the ASP technology for the separation of Zinc-68, Ytterbium-176, Zinc-67, Nickel-64 and Xenon-136 for potential use in the healthcare target end market, and Chlorine -37 and Lithium-6 for potential use in the nuclear energy target end market.

In November 2022, the Company completed its IPO, selling an aggregate of 1,250,000 shares of common stock at a price to the public of $4.00 per share. The Company received net proceeds from the IPO, after deducting underwriting discounts and commissions but before deducting offering costs, of approximately $3.8 million.

Liquidity and Going Concern Uncertainty

The accompanying consolidated financial statements have been prepared on a basis which assumes the Company is a going concern and do not include any adjustments to reflect the possible future effects on the recoverability and classification of assets or the amounts and classifications of liabilities that may result from any uncertainty related to the Company's ability to continue as a going concern. Such adjustments could be material. The Company has experienced net losses and negative cash flows from operating activities since its inception. The Company incurred net losses of $4,945,139 for the year ended December 31, 2022 and $2,607,927 for the period from September 13, 2021 (inception) through December 31, 2021. The Company anticipates it will need to continue to raise capital through additional equity and/or debt financings and/or collaborative development agreements to fund its operations.

The Company currently expects that its cash of $2,389,140 as of December 31, 2022, along with gross proceeds of $5.0 million received in March 2023 through the issuance of 3,164,557 shares of the Company's common stock at a purchase price of $1.58 per share and warrants to purchase up to an aggregate of 3,164,557 shares of its common stock with an exercise price of $1.75 per share, will not be sufficient to fund its operating expenses and capital requirements for more than 12 months from the date the financial statements are issued. These conditions raise substantial doubt about the Company's ability to continue as a going concern. Additional funding will be necessary to complete construction of the first enrichment facility and begin operations, and although the Company has plans to seek additional funding, these plans are not currently probable.

There can be no assurance that the Company will achieve or sustain positive cash flows from operations or profitability. The Company is in the process of seeking additional debt and equity financing. However, such funding may not be available on a timely basis on terms acceptable to the Company, or at all. If the Company is unable to raise additional capital when required or on acceptable terms, the Company may be required to further scale back or discontinue the advancement of product candidates, further reduce headcount, reorganize, merge with another entity, or cease operations.

Coronavirus Pandemic

In March 2020, the World Health Organization declared the COVID-19 outbreak a pandemic. In order to mitigate the spread of COVID-19, governments have imposed unprecedented restrictions on business operations, travel and gatherings, resulting in a global economic downturn and other adverse economic and societal impacts. The COVID-19 pandemic and its impacts continue to evolve. We cannot predict the scope and severity of disruptions as a result of COVID-19 or their impacts on us, but business disruptions for us or any of the third parties with whom we engage, including the collaborators, contract organizations, third-party manufacturers, suppliers, regulators and other third parties with whom we conduct business could materially and negatively impact our ability to conduct our business in the manner and on the timelines presently planned. The extent to which the COVID-19 pandemic may impact our business and financial performance will depend on future developments, which are highly uncertain and cannot be predicted with confidence, including the scope and duration of the pandemic, the extent and effectiveness of government restrictions and other actions, including relief measures, implemented to address the impact of the pandemic, and resulting economic impacts.

The actual and perceived impact of the COVID-19 pandemic is changing daily, and its ultimate effect on our business cannot be predicted. As a result, there can be no assurance that we will not experience negative impacts associated with COVID-19, which could be significant. The COVID-19 pandemic may negatively impact our business, financial condition and results of operations, causing interruptions or delays in the Company's programs and services.

2. Basis of Presentation and Summary of Significant Accounting Policies

Basis of Presentation and Use of Estimates

The Company's consolidated financial statements are prepared in accordance with accounting principles generally accepted in the United States ("GAAP"). The preparation of the Company's consolidated financial statements requires management to make estimates and assumptions that impact the reported amounts of assets, liabilities and expenses and disclosure in the Company's consolidated financial statements and accompanying notes. The most significant estimates in the Company's consolidated financial statements relate to the valuation of equity instruments and estimating our accrued research and development expenses. Although these estimates are based on the Company's knowledge of current events and actions it may undertake in the future, actual results may materially differ from these estimates and assumptions.

Principles of consolidation

The Company's consolidated financial statements include the accounts of ASP Isotopes Inc. and its subsidiaries. All intercompany balances and transactions have been eliminated in consolidation.

Currency and currency translation

The consolidated financial statements are presented in U.S. dollars, the Company's reporting currency. The functional currency of ASP Isotopes Inc. and ASP Guernsey is the U.S. dollar. The functional currency of the Company's subsidiary ASP South Africa is the South African Rand. Adjustments that arise from exchange rate changes on transactions of each group entity denominated in a currency other than the functional currency are included in other income and expense in the consolidated statements of operations. Assets and liabilities of ASP South Africa are recorded in their South African Rand functional currency and translated into the U.S. dollar reporting currency of the Company at the exchange rate on the balance sheet date. Revenue, when recorded, and expenses of ASP South Africa are recorded in their South African Rand functional currency and translated into the U.S. dollar reporting currency of the Company at the average exchange rate prevailing during the reporting period. Resulting translation adjustments are recorded to other comprehensive income (loss).

Concentration of Credit Risk and other Risks

Cash balances are maintained at U.S. financial institutions and may exceed the Federal Deposit Insurance Corporation ("FDIC") insurance limit of $250,000 per depositor, per insured bank for each account ownership category. Although the Company currently believes that the financial institutions with whom it does business, will be able to fulfill their commitments to the Company, there is no assurance that those institutions will be able to continue to do so. The Company has not experienced any credit losses associated with its balances in such accounts for the years ended December 31, 2022 and 2021.

Our foreign subsidiaries held cash of approximately $38,000 and $20,000 as of December 31, 2022 and 2021, respectively, which is included in cash on the consolidated balance sheets. Our strategic plan does not require the repatriation of foreign cash in order to fund our operations in the U.S., and it is our current intention to indefinitely reinvest our foreign cash outside of the U.S. If we were to repatriate foreign cash to the U.S., we would be required to accrue and pay U.S. taxes in accordance with applicable U.S. tax rules and regulations as a result of the repatriation.

Cash

The Company considers all highly liquid investments with original maturities at the date of purchase of three months or less to be cash equivalents. Cash and cash equivalents are stated at fair value and may include money market funds, U.S. Treasury and U.S. government-sponsored agency securities, corporate debt, commercial paper and certificates of deposit. The Company had no cash equivalents as of December 31, 2022 and 2021.

Segment Information

The Company manages its operations as a single segment for the purposes of assessing performance and making operating decisions. The financial information is regularly reviewed by the chief operating decision maker ("CODM") in deciding how to allocate resources. The Company's CODM is its chief executive officer.

Fair Value of Financial Instruments

Accounting guidance defines fair value, establishes a consistent framework for measuring fair value, and expands disclosure for each major asset and liability category measured at fair value on either a recurring or nonrecurring basis. Fair value is defined as an exit price, representing the amount that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants. As such, fair value is a market-based measurement that should be determined based on assumptions that market participants would use in pricing an asset or liability. As a basis for considering such assumptions, the accounting guidance establishes a three-tier fair value hierarchy, which prioritizes the inputs used in measuring fair value as follows:

Level 1: Observable inputs such as quoted prices in active markets;

Level 2: Inputs, other than the quoted prices in active markets, that are observable either directly or indirectly; and

Level 3: Unobservable inputs in which there is little or no market data, which require the reporting entity to develop its own assumptions.

The Company's share liability (Note 9) measured at Level 3 fair value on a recurring basis was $140,455 as of December 31, 2022. There was a transfer of the share liability from Level 3 to Level 1 as a result of our IPO in the year ended December 31, 2022. The following table provides a reconciliation of the Company's liabilities measured at fair value on a recurring basis using significant unobservable inputs (Level 1):

	Share Liability
Balance, September 13, 2021	$ —
Addition on issuance of common stock	116,200
Balance, December 31, 2021	116,200
Addition on issuance of common stock	174,782
Fair value adjustment	(150,527)
Balance, December 31, 2022	$ 140,455

The carrying amounts of accounts payable, accrued expenses and notes payable are considered to be representative of their respective fair values because of the short-term nature of those instruments.

Property and Equipment

Property and equipment include costs of assets constructed, purchased or leased under a finance lease, related delivery and installation costs and interest incurred on significant capital projects during their construction periods. Expenditures for renewals and betterments also are capitalized, but expenditures for normal repairs and maintenance are expensed as incurred. Costs associated with yearly planned major maintenance are generally deferred and amortized over 12 months or until the same major maintenance activities must be repeated, whichever is shorter. The cost and accumulated depreciation applicable to assets retired or sold are removed from the respective accounts, and gains or losses thereon are included in the statement of operations.

We assign the useful lives of our property and equipment based upon our internal engineering estimates, which are reviewed periodically. The estimated useful lives of our property and equipment range from 3 to 5 years, or the shorter of the useful life or remaining life of the lease for leasehold improvements. Depreciation is recorded using the straight-line method.

Construction in progress (Note 3) is carried at cost and consists of specifically identifiable direct and indirect development and construction costs. While under construction, costs of the property are included in construction in progress until the property is placed in service, at which time costs are transferred to the appropriate property and equipment account, including, but not limited to, leasehold improvements or other such accounts.

Leases

In February 2016, the Financial Accounting Standards Board (“FASB”) issued Accounting Standards Update (“ASU”) No. 2016 02, “Leases” (“ASC 842”), which establishes a right-of-use model (“ROU”) that requires a lessee to recognize an ROU asset and corresponding lease liability on the balance sheet for all leases with a term longer than 12 months. Leases will be classified as finance or operating, with classification affecting the pattern and classification of expense recognition in the income statement as well as the reduction of the right-of-use asset. The new standard provides a number of optional practical expedients in transition. The Company has elected to apply (i) the practical expedient, which allows us to not separate lease and non-lease components, for new leases and (ii) the short-term lease exemption for all leases with an original term of less than 12 months, for purposes of applying the recognition and measurements requirements in the new standard.

At the inception of an arrangement, the Company determines whether the arrangement is or contains a lease based on specific facts and circumstances, the existence of an identified asset(s), if any, and the Company’s control over the use of the identified asset(s), if applicable. Operating lease liabilities and their corresponding right-of-use assets are recorded based on the present value of future lease payments over the expected lease term. The interest rate implicit in lease contracts is typically not readily determinable. As such, the Company will utilize the incremental borrowing rate, which is the rate incurred to borrow on a collateralized basis over a similar term an amount equal to the lease payments in a similar economic environment, and considering the region in which the ROU asset and liabilities are located.

The Company has elected to combine lease and non-lease components as a single component. Operating leases are recognized on the balance sheet as ROU lease assets, lease liabilities current and lease liabilities non-current. Fixed rents are included in the calculation of the lease balances, while variable costs paid for certain operating and pass-through costs are excluded. Lease expense is recognized over the expected term on a straight-line basis.

Impairment of Long-lived Assets

Long-lived assets consist primarily of property and equipment. The Company reviews long-lived assets for impairment whenever events or changes in circumstances indicate the carrying amount of an asset is not recoverable. Recoverability of assets to be held and used is measured by a comparison of the carrying amount of an asset to the future undiscounted net cash flows expected to be generated by the asset. If such assets are considered to be impaired, the impairment to be recognized is measured as the amount by which the carrying amount of the asset exceeds the fair value of the assets. Fair value would be assessed using a discounted cash flows or other appropriate measures of fair value. The Company did not recognize any impairment losses for the year ended December 31, 2022 and the period from September 13, 2021 (inception) through December 31, 2021.

Research and Development Costs

Research and development costs consist primarily of fees paid to consultants, license fees and facilities costs. Nonrefundable advance payments for goods and services that will be used in future research and development activities are expensed when the activity has been performed or when the goods have been received rather than when the payment is made. All research and development costs are expensed as incurred.

General and Administrative Costs

General and administrative expenses consist primarily of salaries and related benefits, including stock-based compensation, related to our executive, finance, business development, legal, human resources and support functions. Other general and administrative expenses include professional fees for auditing, tax, consulting and patent-related services, rent and utilities and insurance.

Stock-based Compensation

Stock-based compensation expense represents the cost of the grant date fair value of employee stock awards recognized over the requisite service period of the awards (usually the vesting period) on a straight-line basis. The Company estimates the fair value of each stock-based award on the date of grant using the Black-Scholes option pricing model. The Black-Scholes option pricing model incorporates various assumptions, such as the value of the underlying common stock, the risk-free interest rate, expected volatility, expected dividend yield, and expected life of the options. Forfeitures are recognized as a reduction of stock-based compensation expense as they occur.

The Company also awards restricted stock to employees and directors. Restricted stock is generally subject to forfeiture if employment terminates prior to the completion of the vesting restrictions. The Company expenses the cost of the restricted stock, which is determined to be the fair market value of the shares of common stock underlying the restricted stock at the date of grant, ratably over the period during which the vesting restrictions lapse.

Equity-based compensation expense is classified in the statement of operations in the same manner in which the award recipients' payroll costs are classified or in which the award recipients' service payments are classified.

Prior to the Company's IPO, there was no public market of the Company's common stock. The fair value of the shares of common stock underlying the Company's share-based awards was estimated on each grant date by the Company's board of directors based on then current facts and circumstances. To determine the fair value of the Company's common stock underlying option grants, the board of directors considered, among other things, input from management and recent third-party financings consummated by the Company. In connection with the preparation of the financial statements for the year ended December 31, 2022 and the period from September 13, 2021 (inception) through December 31, 2021, the Company performed a retrospective review of the fair value of its common stock related to the current events available.

Income Taxes

Deferred income tax assets and liabilities arise from temporary differences associated with differences between the financial statements and tax basis of assets and liabilities, as measured by the enacted tax rates, which are expected to be in effect when these differences reverse. Valuation allowances are established when necessary to reduce deferred tax assets to the amount expected to be realized.

The Company has generated net losses since inception and accordingly has not recorded a provision for income taxes.

The Company follows the provisions of ASC 740-10, *Uncertainty in Income Taxes,* or ASC 740-10. The Company has not recognized a liability for any uncertain tax positions. A reconciliation of the beginning and ending amount of unrecognized tax benefits has not been provided since there is no unrecognized benefit since the date of adoption. The Company has not recognized interest expense or penalties as a result of the implementation of ASC 740-10. If there were an unrecognized tax benefit, the Company would recognize interest accrued related to unrecognized tax benefits and penalties in income tax expense.

The Company has identified the United States, Florida, South Africa and Guernsey as its major tax jurisdictions. Refer to Note 12 for further details.

Comprehensive Loss

Comprehensive loss is defined as a change in equity during a period from transactions and other events and circumstances from non-owner sources. The Company's comprehensive loss is comprised of net loss and the effect of currency translation adjustments.

Recently Issued Accounting Pronouncements

The Company has reviewed recently issued accounting pronouncements and plans to adopt those that are applicable to it. The Company does not expect the adoption of any recently issued pronouncements to have a material impact on its results of operations or financial position.

3. Property and Equipment

Property and equipment consist of construction in progress totaling $8,200,595 and $2,988,210 at December 31, 2022 and December 31, 2021, respectively.

The Company is currently building out the plant and office space in South Africa. All costs incurred are considered construction in progress because the work is not complete as of December 31, 2022 and 2021. There was no depreciation expense for the year ended December 31, 2022 and the period from September 13, 2021 (inception) through December 31, 2021.

4. Accrued Expenses

Accrued expenses consisted primarily of accrued professional fees and employee compensation costs at December 31, 2022. Accrued expenses consisted of accrued employee compensation costs at December 31, 2021.

5. Notes Payable

During 2021, the Company executed promissory notes payable with two individuals with an aggregate principal balance of approximately $46,900 (35,000 GBP). The notes were due after a period of two months, followed by mutually agreed upon monthly extensions, and do not bear interest. Subsequent to the issuance of the notes payable, one of the individuals became an officer of the Company.

In March 2022, one of the promissory notes totaling $13,046 (10,000 GBP) was repaid in full. As of December 31, 2022, the total promissory notes payable balance was $33,854 and have been automatically extended on a monthly basis. As of December 31, 2021, the total promissory notes payable balance was $46,900.

6. Commitments and Contingencies

Klydon Proprietary Limited

In November 2021, the Company entered into an agreement with Klydon Proprietary Limited ("Klydon") to design and build a plant to enrich Molybdenum in South Africa. The initial phase of the project includes the building of a plant that can support the production of at least 5kgs of Mo-100, and is expected to be completed in the second half of 2023. The contracted cost for this phase is $6,800,000. The second phase of the project includes the production to be increased to 20kgs of Mo-100 with an additional cost of $6,000,000. The Company can modify the contract scope and overall costs and the contract can be cancelled by either party. As of December 31, 2022 and 2021, approximately $7,233,000 and $1,800,000, respectively, has been paid under this contract and recorded as construction in progress within property and equipment.

Klydon performed a portion of the services required under the Turnkey Contract; however, services were incomplete and many of the services were not completed within the time frame required. As a result, Klydon and ASP South Africa entered into an Acknowledgement of Debt Agreement dated November 30, 2022, whereby Klydon (i) agreed to pledge its assets (the "Pledged Assets") to ASP South Africa to secure its performance of the Turnkey Contract by December 31, 2022, and (ii) acknowledged that ASP South Africa would suffer damages in the amount of $6,050,000 ("Damage Amount") should it fail to perform. Under the Acknowledgement of Debt Agreement, the Pledged Assets would serve as collateral for Klydon's obligation to pay the Damage Amount should Klydon fail to perform. In connection therewith, also on November 30, 2022, ASP South Africa and Klydon entered into a Deed of Security Agreement whereby, if Klydon failed to complete its obligations under the Turnkey Contract by December 31, 2022, all of Klydon's rights of any nature to and interests of any nature in the Pledged Assets would be transferred to ASP South Africa. Klydon failed to complete its obligations under the Turnkey Contract by December 31, 2022, and the Company plans to perfect its interests in the assets as soon as practicable. The Company does not believe that the amounts owed by Klydon are realizable, nor does the Company know the timing of any recovery payments. Therefore, a loss recovery receivable was not recorded at December 31, 2022.

Two individuals who are officers and board members of Klydon received warrants to purchase common stock of the Company. See Notes 8 and 9.

Contingencies

From time to time, the Company may have certain contingent liabilities that arise in the ordinary course of its business activities. The Company accrues liabilities for such matters when future expenditures are probable and such expenditures can be reasonably estimated.

On October 25, 2022, the Company received a letter from a law firm acting on behalf of Norsk medisinsk syklotronsenter AS ("NMS"), asserting, among other things, that the grant of a license to the ASP technology to the Company by Klydon violates a pre-existing exclusive sub-license to the ASP technology granted to Radfarma. The asserted claims, arbitration and/or litigation could include claims against the Company, the Company's licensor (Klydon), or Klydon's present or former sub-licensors alleging infringement of intellectual property rights with respect to the ASP technology on which our company relies. The Company believe these claims have no merit.

7. Lease

The Company accounts for leases in accordance with ASC 842 (Note 2). The Company is party to one operating lease in Pretoria, South Africa for office and laboratory space. The lease commenced in October 2021 with the initial term set to expire in December 2030. The Company has applied the guidance in ASC 842 and has determined that it should be classified as an operating lease. The Company's incremental borrowing rate is approximately 7.5% based on the remaining lease term of the applicable lease. Consequently, a ROU lease asset of approximately $952,521 with a corresponding lease liability of approximately $952,521 based on the present value of the minimum rental payments of such lease was recorded at the inception of the lease. In the consolidated balance sheet at December 31, 2022, the Company has a ROU asset balance of $853,889 and a current and non-current lease liability of $45,903 and $742,443, respectively, relating to the ROU lease asset. The balance of both the ROU lease asset and the lease liabilities primarily consists of future payments under the Company's lease in South Africa.

Quantitative information regarding the Company's lease is as follows:

	Year Ended December 31, 2022	For the period from September 13, 2021 (inception) through December 31, 2021
Lease Cost		
Operating lease cost	$ 125,667	$ 19,376
Other Information		
Operating cash flows paid for amounts included in the measurement of lease liabilities	$ 93,211	$ 26,582
Operating lease liabilities arising from obtaining right-of-use assets	$ —	$ 952,521
Remaining lease term (years)	8.00	9.00
Discount rate	7.5%	7.5%

Future lease payments under noncancelable leases are as follows at December 31, 2022:

	Operating Leases
Future Lease Payments	
2023	$ 103,543
2024	111,308
2025	119,656
2026	128,631
2027	138,278
Thereafter	480,229
Total lease payments	$ 1,081,645
Less: imputed interest	(293,299)
Total lease liabilities	$ 788,346
Less current portion	(45,903)
Lease liability – noncurrent	$ 742,443

8. License Agreements

In September 2021, the Company licensed certain intellectual property from Klydon for the development, production distribution, marketing and sale of Mo-100. The license term is 999 years, unless terminated earlier by either party under certain provisions. Any development efforts improving the intellectual property performed by either Klydon or the Company will be the property of Klydon. There are no upfront, milestone payments, nor royalties on product sales over the term of the license. Two individuals who are officers and board members of Klydon received warrants to purchase common stock of the Company. See Note 9.

In January 2022, the Company licensed certain intellectual property from Klydon for the development, production distribution, marketing and sale of uranium isotope U-235 ("U-235"). The license term is 999 years, unless terminated earlier by either party under certain provisions. Any development efforts improving the intellectual property performed by either Klydon or the Company will be the property of Klydon. The Company paid an upfront fee of $100,000, which was expensed to research and development expense. The Company is required to pay a nominal royalty per Kg of product sold plus 10% royalties on product net profits over the term of the contract. One of the officers, who is also a board member of Klydon, became a board member and consultant of ASP Isotopes Inc. and an employee of ASP Guernsey in January 2022.

In July 2022, ASP Isotopes UK Ltd (a subsidiary of the Company) entered into a license agreement with Klydon, as licensor, pursuant to which ASP Isotopes UK Ltd acquired from Klydon an exclusive license to use, develop, modify, improve, subcontract and sublicense certain intellectual property rights relating to the ASP technology for the production, distribution, marketing and sale of all isotopes produced using the ASP technology (the "Klydon license agreement"). The Klydon license agreement superseded and replaced the Mo-100 license and U-235 license described in Note 8 above. The Klydon license agreement is royalty-free, has a term of 999 years and is worldwide for the development of the ASP technology and the distribution, marketing and sale of isotopes. Future production of isotopes is limited to member countries of the Nuclear Suppliers Group. In connection with the Klydon license agreement the Company agreed to make an upfront payment of $100,000 (to be included within the payments we make under the Turnkey Contract) and deferred payments of $300,000 over 24 months, which was expensed to research and development expense. Klydon has the right to terminate the exclusivity of the Klydon license agreement in the event that the licensee ceases to carry on activities related to isotope enrichment for a period longer than 24 consecutive months. The $400,000 due to Klydon is in accounts payable as of December 31, 2022.

In July 2022, ASP South Africa acquired assets comprising a dormant Silicon-28 aerodynamic separation processing plant from Klydon for ZAR6,000,000 (which at the then current exchange rate was approximately $354,000), which was recorded to property and equipment, will be payable to Klydon on the later of 180 days of the acquisition and the date on which the assets generate any revenues of any nature.

9. Stockholders' Equity

Preferred stock

The Company has 10,000,000 shares of preferred stock authorized, of which no shares were issued and outstanding at December 31, 2022 and December 31, 2021.

Common stock

The Company has 500,000,000 shares of common stock authorized, of which35,907,127 shares were issued and outstanding at December 31, 2022. Common stockholders are entitled to one vote for each share of outstanding common stock held at all meetings of stockholders and written actions in lieu of meetings. Common stockholders are entitled to receive dividends for each share of outstanding common stock, if and when declared by the Board. No dividends have been declared or paid by the Company through December 31, 2022.

From September 2021 through early November 2021, the Company issued15,100,000 shares of common stock at $0.25 per share.

From November 2021 through December 2021, the Company issued 1,452,500 shares of common stock at $2.00 per share. The Company incurred $226,000 in cash issuance costs and is required to issue 58,100 shares of common stock to the placement agent with an initial fair value of $116,200, which is recorded as a share liability on the balance sheet.

During 2022, prior to the IPO, the Company issued 1,559,780 shares of common stock at $2.00 per share for gross proceeds of $3,119,559. The Company incurred $255,965 in cash issuance costs and is required to issue 62,391 shares of common stock to the placement agent with an initial fair value of $124,782, which is recorded as a share liability on the consolidated balance sheet.

In October 2022, the Company amended its agreement with the placement agent for the shares issued from November 2021 through April 2022. The shares of common stock issuable to the placement agent was reduced from 120,491 shares to 57,250 shares. The fair value of the 57,250 shares issuable to the placement agent as of December 31, 2022 was $90,455, resulting in a change in fair value of share liability of $150,527 for the year ended December 31, 2022. In March 2023, the Company settled this share liability by issuing 57,250 shares of common stock.

In November 2022, the Company was required to issue shares of common stock with a fair value totaling $50,000 to a consultant. As of December 31, 2022, these shares had yet to be issued.

In November 2022, the Company completed its IPO, selling an aggregate of 1,250,000 shares of common stock at a price to the public of $4.00 per share. The Company received net proceeds from the IPO, after deducting underwriting discounts and commissions but before deducting offering costs, of approximately $3.8 million.

Founder Stock

In September 2021, the Company awarded 2,000,000 shares of common stock to its founders for no cash consideration. The Company determined that the fair value of these shares was $0.25 per share and recorded stock compensation expense of $500,000 in 2021.

Common Stock Warrants

In September 2021, the Company issued warrants to purchase 7,230,822 shares of common stock at an exercise price of $0.01 per share for no cash consideration to two parties for their field of knowledge related to the technical operations of the Company. These warrants were to expire in September 2023. The Company determined that the fair value of common stock was $0.25 per share. The fair value of these warrants was determined to be $1,735,841 and was recorded as general and administrative expense.

The fair values of the warrants were estimated based on the Black-Scholes model, using the following assumptions:

Expected volatility	76.5%
Weighted-average risk-free rate	0.21%
Expected term in years	2.00
Expected dividend yield	0%

In January 2022, warrants to purchase 7,230,822 shares of common stock were net share settled into 7,194,847 shares of common stock per the terms of the underlying warrant agreements. No warrants were exercised in 2021.

10. Stock Compensation Plan

Equity Incentive Plan

In October 2021, the Company adopted the 2021 Stock Incentive Plan (“2021 Plan”) that provided for the issuance of common stock to employees, nonemployee directors, and consultants. Recipients of incentive stock options are eligible to purchase shares of common stock at an exercise price equal to no less than the estimated fair market value of such stock on the date of grant. The 2021 Plan provided for the grant of incentive stock options, non-statutory stock options, restricted stock, restricted stock units, stock awards and stock appreciation rights. The maximum contractual term of options granted under the 2021 Plan is ten years. The maximum number of shares initially available for issuance under the 2021 Plan was 6,000,000. No further options were available to be issued under the 2021 Plan.

In November 2022, the Company adopted the 2022 Equity Incentive Plan ("2022 Plan") that provides for the issuance of common stock to employees, nonemployee directors, and consultants. Recipients of incentive stock options are eligible to purchase shares of common stock at an exercise price equal to no less than the estimated fair market value of such stock on the date of grant. The 2022 Plan provides for the grant of incentive stock options, non-statutory stock options, restricted stock, restricted stock units, stock awards and stock appreciation rights. The maximum contractual term of options granted under the 2022 Plan is ten years. The number of shares of the Company's common stock reserved for issuance under the 2022 Plan is equal to 5,000,000, subject to an annual increase, to be added on the first day of each fiscal year, beginning with the fiscal year ending December 31, 2023 and continuing until, and including, the fiscal year ending December 31, 2033, equal to the lesser of 5% of the number of shares of the Company's common stock outstanding on such date or an amount determined by the Company's board of directors. As of December 31, 2022, 2,000,000 shares remain available for future grant under the Plan.

Stock Options

The following table sets forth the activity for the Company's stock options during the periods presented:

	Number of Options	Weighted-Average Exercise Price per Share	Weighted Average Remaining Contractual Term (in Years)	Aggregate Intrinsic Value
Outstanding at September 13, 2021 (inception)	—	$ —	—	$ —
Granted	400,000	$ 0.25		
Outstanding at December 31, 2021	400,000	$ 0.25	9.8	$ 700,000
Granted	2,751,000	$ 2.00		
Forfeited	(250,000)	$ 0.25		
Outstanding at December 31, 2022	2,901,000	$ 1.91	9.4	$ 199,500
Exercisable at December 31, 2022	418,749	$ 1.76	9.3	$ 77,583
Vested or expected to vest at December 31, 2022	2,901,000	$ 1.91	9.4	$ 199,500

The fair values of the options granted were estimated based on the Black-Scholes model, using the following assumptions:

	Year Ended December 31, 2022
Expected volatility	62.6% – 69.5%
Risk-free interest rate	1.68% – 3.25%
Expected term in years	5.5 – 6.3
Expected dividend yield	—%

For the year ended December 31, 2022, the Company granted 2,751,000 options with an exercise price of $2.00 per share, of which 288,000 options were issued to nonemployee directors that vest in April 2023 and the remaining options generally vest monthly over three years. The weighted average grant date fair value of options granted during 2022 was $1.18.

During 2021, the Company granted 400,000 options with an exercise price of $0.25 per share that vest monthly over three years. The weighted-average grant date fair value of options granted during 2021 was $0.15.

The Company recorded stock compensation from options of $923,581 and $4,894 for the year ended December 31, 2022 and the period September 13, 2021 (inception) through December 31, 2021, respectively. As of December 31, 2022, there was $2,341,524 of unrecognized compensation cost related to non-vested share-based compensation arrangements granted under the Plan, which is expected to be recognized over a weighted average period of approximately 2.2 years.

Stock Awards

In October 2021, the Company issued 1,500,000 shares of restricted common stock to its Chief Executive Officer. The number of shares that vest is dependent on achieving certain performance conditions and dependent market conditions upon the third anniversary from the date of grant. The Company determined that the fair value of this award was $0.25 per share for a total value of $375,000. Upon reaching the performance condition, which has not been met as of December 31, 2022, the Company will recognize stock compensation expense over the remaining measurement period.

In October 2021, the Company issued 600,000 shares of restricted common stock to a consultant who is also a member the board of directors, that vest annually over three years. The Company determined that the fair value of this award was $0.25 per share for a total value of $150,000. The consulting agreement also included future awards of common stock for continued service, however in March 2023, the consulting agreement was amended and these future awards were cancelled.

In July 2022, the Company issued 600,000 shares of restricted common stock to a consultant who is also a member the board of directors, that vest quarterly over one year. The Company determined that the fair value of this award was $2.00 per share for a total value of $1,200,000.

In July 2022, the Company issued 100,000 shares of restricted common stock to a consultant, that vests on the one-year anniversary of the grant. The Company determined that the fair value of this award was $2.00 per share for a total value of $200,000.

In November 2022, the Company issued 3,000,000 shares of restricted common stock to certain employees and directors, that vest two to four years from the date of the grant. The Company determined that the fair value of these awards was $2.63 per share for a total value of $7,890,000.

In December 2022, the Company issued an aggregate of 1,550,000 shares of restricted common stock to its Chief Executive Officer and Chairman, Interim Chief Financial Officer and a director that vest quarterly over one year from the date of the grant. The Company determined that the fair value of these awards was $1.58 per share for a total value of $2,449,000.

The Company recorded stock compensation from stock awards totaling $1,075,732 and $8,333 for the year ended December 31, 2022 and the period September 13, 2021 (inception) through December 31, 2021. At December 31, 2022, there is $10,804,935 of unrecognized compensation cost related to the non-vested portion of stock awards that is expected to be recognized over the next 2.6 years.

The following table summarizes vesting of restricted common stock:

	Number of Shares	Weighted Average Grant Date Fair Value Per Share
Unvested at September 13, 2021 (inception)	—	$ —
Granted	2,100,000	0.25
Unvested at December 31, 2021	2,100,000	0.25
Granted	5,250,000	2.24
Vested	(350,000)	1.00
Unvested at December 31 2022	7,000,000	$ 1.75

Stock-based Compensation Expense

Stock-based compensation expense for all stock awards recognized in the accompanying consolidated statements of operations is as follows:

	Year Ended December 31, 2022	For The Period From September 13, 2021 (Inception) Through December 31, 2021
General and administrative	$ 1,798,043	$ 513,227
Research and development	201,270	—
Total	$ 1,999,313	$ 513,227

11. Net Loss Per Share

The Company has reported losses since inception and has computed basic net loss per share attributable to common stockholders by dividing net loss attributable to common stockholders by the weighted-average number of shares of Common Stock outstanding for the period, without consideration for potentially dilutive securities. The Company computes diluted net loss per share of Common Stock after giving consideration to all potentially dilutive shares of common stock, including options to purchase common stock and warrants to purchase common stock, outstanding during the period determined using the treasury-stock and if-converted methods, except where the effect of including such securities would be antidilutive. Because the Company has reported net losses since inception, these potential shares of Common Stock have been anti-dilutive and basic and diluted loss per share were the same for all periods presented.

The following table sets forth the computation of basic and diluted net loss per share:

	Year Ended December 31, 2022	For The Period From September 13, 2021 (Inception) Through December 31, 2021
Numerator:		
Net loss	$ (4,945,139)	$ (2,607,927)
Denominator:		
Weighted average common stock outstanding, basic and diluted	26,793,745	16,246,432
Net loss per share, basic and diluted	$ (0.18)	$ (0.16)

The following table sets forth the potentially dilutive securities that have been excluded from the calculation of diluted net loss per share because to include them would be anti-dilutive:

	Year Ended December 31, 2022	For The Period From September 13, 2021 (Inception) Through December 31, 2021
Options to purchase common stock	2,901,000	400,000
Restricted stock	7,000,000	—
Warrants to purchase Common Stock	—	7,230,822
Total shares of common stock equivalents	9,901,000	7,630,822

12. Income Taxes

The components of net loss before taxes are as follows:

	Year Ended December 31, 2022	For the Period From September 13, 2021 (Inception) Through December 31, 2021
Domestic	$ (3,205,342)	$ (2,388,630)
Foreign	(1,739,797)	(219,297)
Total net loss before taxes	$ (4,945,139)	$ (2,607,927)

The effective tax rate of the Company's provision for income taxes differs from the federal statutory rate for the year ended December 31, 2022 and the period September 13, 2021 (inception) through December 31, 2021 as follows:

	Year Ended December 31, 2022	For The Period From September 13, 2021 (Inception) Through December 31, 2021
Tax computed at federal statutory rate	21.00%	21.00%
Earnings in jurisdictions taxed at rates different from the statutory U.S. federal tax rate	(5.89)%	4.11%
Permanent differences	0.64%	(22.95)%
Other	2.98%	—
Valuation allowance	(18.73)%	(2.16)%
Income tax expense	—	—

Deferred income taxes reflect the net tax effects of (a) temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes, and (b) operating losses and tax credit carryforwards. Significant components of deferred tax assets (liabilities) are as follows:

	December 31,	
	2022	2021
Deferred tax assets:		
Net operating loss carryforwards	$ 496,751	$ 140,241
Capitalized R&D costs	50,289	—
Share-based compensation	418,019	—
Right-of-use lease liability	243,113	264,249
Total deferred tax assets	1,208,172	404,490
Deferred tax liabilities:		
Share-based compensation	—	(91,691)
Right-of-use lease asset	(230,550)	(261,281)
Total deferred tax liabilities	(230,550)	(352,972)
Total net deferred tax assets	977,622	51,518
Less: valuation allowance	(977,622)	(51,518)
Net deferred taxes	$ —	$ —

The Company has no income tax expense due to operating losses incurred for the year ended December 31, 2022 and the period from September 13, 2021 (inception) through December 31, 2021. The Company has provided a full valuation allowance on the net deferred tax asset because management has determined that it is more-likely-than-not that the Company will not earn income sufficient to realize the deferred tax assets during a future period. The valuation allowance increased by $926,104 in 2022 due to the increase in the net deferred tax assets by the same amount; primarily due to net operating loss carryforwards and the mandatory capitalization of qualified research and development expenses in 2022.

As of December 31, 2022, the Company has federal, state and South Africa NOLs available of approximately $1,657,883, $1,657,883 and $459,680, respectively, to offset future taxable income, if any, for federal and state income tax purposes. The state NOLs are carried forward indefinitely until used and never expire. Under the Tax Act, federal NOLs utilized are limited to 80% of taxable income in any year where taxable income is determined without regard to the NOL deduction itself. The Tax Act generally eliminates the ability to carry back any net operating loss to prior taxable years, while allowing unused net operating losses to be carried forward indefinitely.

The Company recognizes a tax benefit from an uncertain tax position when it is more likely than not that the position will be sustained upon examination, including resolutions of any related appeals or litigation processes, based on the technical merits. Income tax positions must meet a more likely than not recognition threshold to be recognized. The Company's practice is to recognize interest and/or penalties related to income tax matters in income tax expense. The Company had no accrual for interest and penalties on the Company's balance sheets and has not recognized interest and/or penalties in the statements of operations and comprehensive loss for the year ended December 31, 2022 and for the period from September 13, 2021 (inception) through December 31, 2021. Uncertain tax positions are evaluated based upon the facts and circumstances that exist at each reporting period. Subsequent changes in judgment based upon new information may lead to changes in recognition, derecognition, and measurement. Adjustments may result, for example, upon resolution of an issue with the taxing authorities or expiration of a statute of limitations barring an assessment for an issue. As of December 31, 2022 and December 31, 2021, there were no uncertain tax positions.

Ownership changes, as defined in the IRC, may limit the amount of net operating loss carryforwards that can be utilized annually to offset future taxable income pursuant to IRC Section 382 or similar provisions. Subsequent ownership changes could further affect the limitation in future years. The Company has not completed a study to assess whether a change of control has occurred or whether there have been multiple changes of control since the Company's formation due to the significant complexity and cost associated with such study and because there could be additional changes in control in the future. As a result, the Company is not able to estimate the effect of the change in control, if any, on the Company's ability to utilize net operating loss and research and development credit carryforwards in the future.

13. Subsequent Events

In March 2023, the Company received gross proceeds of $5.0 million through the issuance of 3,164,557 shares of its common stock at a purchase price of $1.58 per share and warrants to purchase up to an aggregate of 3,164,557 shares of its common stock with an exercise price of $1.75 per share. The Company paid the placement agent (i) a total cash fee equal to 7.0% of the aggregate gross proceeds of the offering; (ii) a management fee of 1.0% of the aggregate gross proceeds of the offering; and (iii) reimbursement of certain expenses. In addition, the Company issued to the Placement Agent ("PA") warrants to purchase up to 221,519 shares of the Company's common stock at an exercise price of $1.975 per share. The PA Warrants are exercisable on or after September 17, 2023 and will expire on September 18, 2028.

The Company has evaluated subsequent events through March 31, 2023, the date on which the accompanying financial statements were issued, and no other events were noted.

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

None.

Item 9A. Controls and Procedures

Disclosure Controls and Procedures

Our management, with the participation of our Chief Executive Officer and Chief Financial Officer, evaluated the effectiveness of our disclosure controls and procedures as of December 31, 2022. The term "disclosure controls and procedures," as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act, mean controls and other procedures of a company that are designed to ensure that information required to be disclosed by us in the reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms. Disclosure controls include, without limitation, controls and procedures designed to ensure that information required to be disclosed by a company on the reports that it files or submits under the Exchange Act is accumulated and communicated to management, including, our principal executive and principal financial officers, as appropriate, to allow timely decisions regarding required disclosure.

Management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives and management necessarily applies its judgement in evaluating the cost-benefit relationship of possible controls and procedures. Based on the evaluation of our disclosure controls and procedures as of December 31, 2022, our Chief Executive Officer and Chief Financial Officer concluded that, as a result of a material weakness identified in our internal control over financial reporting, our disclosure controls and procedures were not effective as of December 31, 2022**.**

In the course of preparing the financial statements that are included in this Form 10-K, management has determined that a material weakness exists within the internal controls over financial reporting. The material weakness identified relates to the lack of a sufficient complement of personnel within the finance and accounting function with an appropriate degree of knowledge, experience and training. We also noted a material weakness related to logical security and privileged access in the area of information technology. We concluded that the material weaknesses in our internal control over financial reporting information technology occurred because, prior to becoming a public company, we were a private company and did not have the necessary business processes, systems, personnel, and related internal controls necessary to satisfy the accounting and financial reporting requirements of a public company.

In order to remediate the material weaknesses, we expect to hire additional accounting, and finance and information technology resources or consultants with public company experience.

We may not be able to fully remediate the identified material weakness until the steps described above have been completed and our internal controls have been operating effectively for a sufficient period of time. We believe we have already and will continue to make progress in our remediation plan during the year ending December 31, 2022, but cannot assure you that we will be able to fully remediate the material weakness in 2023. If the steps we take do not correct the material weakness in a timely manner, we will be unable to conclude that we maintain effective internal control over financial reporting. Accordingly, there could continue to be a reasonable possibility that a material misstatement of our financial statements would not be prevented or detected on a timely basis. We also may incur significant costs to execute various aspects of our remediation plan but cannot provide a reasonable estimate of such costs at this time.

Management's Annual Report on Internal Controls Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting (as such term is defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act). Our internal control system was designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes, in accordance with generally accepted accounting principles in the United States. Due to inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness of the internal control over financial reporting to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with policies and procedures may deteriorate. Our management, under the supervision and with the participation of our chief executive officer and chief financial officer, evaluated the effectiveness of our internal control over financial reporting as of the end of the period covered by this Annual Report on Form 10-K based on the framework in Internal Control---Integrated Framework (2013 framework) issued by the Committee of Sponsoring Organizations of the Treadway Commission, or COSO. Based on such evaluation, our management concluded that our internal control over financial reporting was effective as of the end of the period covered by this Annual Report on Form 10-K.

This Annual Report on Form 10-K does not include an attestation report on internal control over financial reporting issued by our independent registered public accounting firm. Our auditors will not be required to opine on the effectiveness of our internal control over financial reporting pursuant to Section 404(b) of the Sarbanes-Oxley Act of 2002 until we are no longer an emerging growth company, as defined in the Jumpstart Our Business Startups Act of 2012.

Changes in Internal Control Over Financial Reporting

There were no changes in our internal control over financial reporting that occurred during our most recent fiscal quarter that materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. Other Information

None.

Item 9C. Disclosure Regarding Foreign Jurisdictions that Prevent Inspections

None.

PART III

Item 10. Directors, Executive Officers and Corporate Governance

The information required by this item will be included in an amendment to this Annual Report on Form 10-K or incorporated by reference from our definitive proxy statement to be filed pursuant to Rule 14A.

Item 11. Executive Compensation

The information required by this item will be included in an amendment to this Annual Report on Form 10-K or incorporated by reference from our definitive proxy statement to be filed pursuant to Rule 14A.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

The information required by this item will be included in an amendment to this Annual Report on Form 10-K or incorporated by reference from our definitive proxy statement to be filed pursuant to Rule 14A.

Item 13. Certain Relationships and Related Transactions and Director Independence

The information required by this item will be included in an amendment to this Annual Report on Form 10-K or incorporated by reference from our definitive proxy statement to be filed pursuant to Rule 14A.

Item 14. Principal Accounting Fees and Services

The information required by this item will be included in an amendment to this Annual Report on Form 10-K or incorporated by reference from our definitive proxy statement to be filed pursuant to Rule 14A.

PART IV

Item 15. Exhibits, Financial Statement Schedules

The following documents are filed as part of this Annual Report on Form 10-K:

(a) Financial Statements

The information concerning our consolidated financial statements and Report of Independent Registered Public Accounting Firm required by this Item is incorporated by reference herein to the section of this Annual Report on Form 10-K in Item 8, entitled "Financial Statements and Supplementary Data."

(b) Financial Statement Schedules

All schedules have been omitted because the required information is not present or not present in amounts sufficient to require submission of the schedules, or because the information required is included in the Financial Statements or notes thereto.

(c) Exhibits

The list of exhibits filed with this report is set forth in the Exhibit Index immediately preceding the signature page and is incorporated herein by reference.

Exhibit Number	Description of Document
3.1	Certificate of Incorporation.
3.2	Bylaws.
3.3	Amended and Restated Certificate of Incorporation.
3.4	Amended and Restated Bylaws.
10.1+	ASP Isotopes Inc. 2021 Stock Incentive Plan, as amended, and form of award agreements thereunder (incorporated by reference to Exhibit 10.1 to the Form S-1/A filed on November 9, 2022 (File No. 333-267392)).
10.2+	ASP Isotopes Inc. 2022 Equity Incentive Plan and form of award agreements thereunder (incorporated by reference to Exhibit 10.2 to the Form S-1/A filed on November 9, 2022 (File No. 333-267392))
10.3+	Performance Share Award Grant Notice and Performance Share Award Agreement with Paul Mann, dated October 4, 2021, as amended (incorporated by reference to Exhibit 10.3 to the Form S-1/A filed on November 9, 2022 (File No. 333-267392)).
10.4+	Form of Indemnification Agreement between the registrant and each of its directors and executive officers (incorporated by reference to Exhibit 10.4 to the Form S-1/A filed on November 9, 2022 (File No. 333-267392)).
10.5+	Form of Director Agreement (incorporated by reference to Exhibit 10.5 to the Form S-1/A filed on November 9, 2022 (File No. 333-267392)).
10.6+	Executive Employment Agreement by and between the registrant and Paul Mann, dated October 4, 2021 (incorporated by reference to Exhibit 10.6 to the Form S-1/A filed on November 9, 2022 (File No. 333-267392)).
10.7+	Executive Employment Agreement by and between ASP Isotopes Guernsey Limited and Hendrik Strydom, dated January 19, 2022 (incorporated by reference to Exhibit 10.7 to the Form S-1/A filed on November 9, 2022 (File No. 333-267392)).
10.8+	Executive Employment Agreement by and between ASP Isotopes Guernsey Limited and Robert Ainscow, dated October 4, 2021, as amended (incorporated by reference to Exhibit 10.8 to the Form S-1/A filed on November 9, 2022 (File No. 333-267392)).
10.9	Advisory Agreement by and between the registrant and ChemBridges LLC, dated October 27, 2021, as amended (incorporated by reference to Exhibit 10.9 to the Form S-1/A filed on November 9, 2022 (File No. 333-267392)).
10.10	License Agreement between ASP Isotopes South Africa (Proprietary) Limited (formerly PDS Photonica Holdings South Africa (Proprietary) Limited) and Klydon (Proprietary) Limited dated September 30, 2021, as amended (incorporated by reference to Exhibit 10.10 to the Form S-1/A filed on November 9, 2022 (File No. 333-267392)).

10.11	License Agreement between ASP Isotopes South Africa (Proprietary) Limited and Klydon (Proprietary) Limited dated January 25, 2021 (incorporated by reference to Exhibit 10.11 to the Form S-1/A filed on November 9, 2022 (File No. 333-267392)).
10.12	Contract for a Turnkey Molybdenum Enrichment Plan between ASP Isotopes South Africa (Proprietary) Limited (formerly PDS Photonica Holdings South Africa (Proprietary) Limited) and Klydon (Proprietary) Limited dated November 1, 2021 (incorporated by reference to Exhibit 10.12 to the Form S-1/A filed on November 9, 2022 (File No. 333-267392)).
10.13	Letter Agreements between the registrant and Dr Einar Ronander and Dr Hendrik Strydom, dated January 2021 (incorporated by reference to Exhibit 10.13 to the Form S-1/A filed on November 9, 2022 (File No. 333-267392)).
10.14	Chief Scientific Adviser between the registrant and Dr Einar Ronander, dated January 2021 (incorporated by reference to Exhibit 10.14 to the Form S-1/A filed on November 9, 2022 (File No. 333-267392)).
10.15	Lease for Molybdenum Processing Plant between ASP Isotopes South Africa (Proprietary) Limited (formerly PDS Photonica Holdings South Africa (Proprietary) Limited) and Morgan Creek Properties 311 Pty Ltd. (incorporated by reference to Exhibit 10.15 to the Form S-1/A filed on November 9, 2022 (File No. 333-267392)).
10.16	Form of Subscription Agreement (incorporated by reference to Exhibit 10.16 to the Form S-1/A filed on November 9, 2022 (File No. 333-267392)).
10.17	License Agreement between ASP Isotopes UK Ltd and Klydon (Proprietary) Limited dated July 26, 2022 (incorporated by reference to Exhibit 10.17 to the Form S-1/A filed on November 9, 2022 (File No. 333-267392)).
10.18*	Amended Advisory Agreement between the registrant and ChemBridges, LLC, dated December 12, 2022.
10.19*	Amended Executive Employment Agreement between the registrant and Paul Mann effective December 20, 2022.
10.20*	Acknowledgement of Debt Agreement between ASP Isotopes South Africa (Proprietary) Limited and Klydon (Proprietary) Limited dated November 30, 2022
10.21*	Deed of Security Agreement between ASP Isotopes South Africa (Proprietary) Limited and Klydon (Proprietary) Limited dated November 30, 2022
21.1*	List of Subsidiaries of the Registrant
23.1*	Consent of EisnerAmper LLP, independent registered public accounting firm.
24.1*	Power of Attorney.

31.1*	Certification of Principal Executive Officer Pursuant to Rules 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2*	Certification of Principal Accounting Officer Pursuant to Rules 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.1*	Certification of Principal Executive Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
32.2*	Certification of Principal Accounting Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101.INS	Inline XBRL Instance Document – the instance document does not appear in the Interactive Data File because XBRL tags are embedded within the Inline XBRL document.
101.SCH	Inline XBRL Taxonomy Extension Schema Document
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document
104	Cover Page Interactive Data File (embedded within the Inline XBRL document)

* Filed herewith.

** Furnished herewith.

\+ Management contract or compensatory plan or arrangement.

Item 16. Form 10-K Summary

None.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized, on the 31st day of March, 2023.

ASP ISOTOPES Inc.

By */s/ PAUL E. MANN*
Paul E. Mann
Chairman, Chief Executive Officer and Director

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant in the capacities and on the dates indicated.

Signature	Title	Date
/s/ PAUL E. MANN Paul E. Mann	Chief Executive Officer, Chairman and Director (Principal Executive Officer)	March 31, 2023
/s/ ROBERT AINSCOW Robert Ainscow	Interim Chief Financial Officer (Principal Financial and Accounting Officer)	March 31, 2023
/s/ JOSHUA DONFELD Joshua Donfeld	Director	March 31, 2023
/s/ DUNCAN MOORE, Ph.D. Duncan Moore, Ph.D.	Director	March 31, 2023
/s/ HENDRIK STRYDOM, Ph.D. Hendrik Strydom, Ph.D.	Director	March 31, 2023
/s/ SERGEY VASNETSOV Sergey Vasnetsov	Director	March 31, 2023
/s/ TODD WIDER, M.D. Todd Wider, M.D.	Director	March 31, 2023

EXHIBIT 21.1

ASP Isotopes Inc.
Subsidiaries of the Registrant

Subsidiaries*	Place of Incorporation
ASP Isotopes Guernsey Limited (formerly, PDS-Photonica Holdings (Guernsey) Limited)	Guernsey
ASP Isotopes South Africa (Proprietary) Limited (formerly, PDS Photonica Holdings South Africa (PTY) Limited)	South Africa
Enriched Energy LLC	Delaware, U.S.
ASP Isotopes UK Ltd	England & Wales
Enlightened Isotopes (Pty) Ltd	South Africa

* Please note that this list includes all subsidiaries of ASP Isotopes Inc. without regard to whether they would constitute a "significant subsidiary" pursuant to Item 601(b)(21)(ii) of Regulation S-K.

2nd AMENDMENT TO ADVISORY AGREEMENT

Amendment to Advisory Agreement, dated as of December 12, 2022 (the "Amendment"), between ASP Isotopes Inc., a Delaware corporation (including its successors and assigns, the "Company"), and ChemBridges LLC, a Puerto Rico limited liability company ("Advisor", and together with the Company, the "Parties", and each, a "Party").

WHEREAS, the Parties have entered into an Advisory Agreement, dated as of October 27, 2021 (the "Existing Agreement");

WHEREAS, Advisor has made significant contributions to the achievement of the Company's objectives and devoted significant time and attention, at the Company's request, beyond the scope of advisory services contemplated by the Existing Agreement; and

WHEREAS, the Parties desire to amend the Existing Agreement to provide additional compensation to Advisor to incentivize continued future performance and encourage retention of services on the terms and subject to the conditions set forth herein.

NOW, THEREFORE, in consideration of the foregoing and other good consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties agree as follows:

1. Definitions. Capitalized terms used and not defined in this Amendment have the respective meanings assigned to them in the Existing Agreement.

2. Amendments to the Existing Agreement. As of the Amendment Effective Date (defined below), the Existing Agreement is hereby amended or modified as follows:

(a) Section 6 of the Existing Agreement is hereby amended by inserting at the end of such Section 6 a new sub-section 6(c) containing the following new sentences:

"6(c). Equity Awards and Incentive Compensation: During the term of employment, the Advisor shall be eligible to participate in any equity-based incentive compensation plan or program adopted by either the Parent or the Company (such awards under such plan or program, the "Share Awards"). The Parents' 2022 Equity Incentive Plan allows for an annual increase commencing on January 1, 2023 and on each subsequent January 1 through and including January 1, 2032 by a number of shares equal to the lesser of (i) five percent (5%) of the number of shares of Stock outstanding as of the conclusion of the Company's immediately preceding fiscal year, or (ii) such amount, if any, as the Board may determine. Therefore, annually, the Advisor shall be entitled to receive an Equity Award equal to 1.5% (one and a half percent) of the number of shares of Stock outstanding as of the conclusion of the Company's immediately preceding fiscal year. These shares will be granted on March 1 of each year and will vest Quarterly over a 12 month (twelve-month) period."

3. Date of Effectiveness; Limited Effect. This Amendment will become effective as of the date first written above (the "Amendment Effective Date"). Except as expressly provided in this Amendment, all of the terms and provisions of the Existing Agreement are and will remain in full force and effect and are hereby ratified and confirmed by the Parties. Without limiting the generality of the foregoing, the amendments contained herein will not be construed as an

amendment to or waiver of any other provision of the Existing Agreement or as a waiver of or consent to any further or future action on the part of either Party that would require the waiver or consent of the other Party. On and after the Amendment Effective Date, each reference in the Existing Agreement to "this Agreement," "the Agreement," "hereunder," "hereof," "herein," or words of like import, and each reference to the Existing Agreement in any other agreements, documents, or instruments executed and delivered pursuant to, or in connection with, the Existing Agreement, will mean and be a reference to the Existing Agreement as amended by this Amendment.

4. Miscellaneous.

(a) This Amendment is governed by and construed in accordance with the laws of the State of Delaware, without regard to the conflict of laws provisions of such State.

(b) This Amendment shall inure to the benefit of and be binding upon each of the Parties and each of their respective successors and permitted assigns.

(c) The headings in this Amendment are for reference only and do not affect the interpretation of this Amendment.

(d) This Amendment may be executed in counterparts, each of which is deemed an original, but all of which constitute one and the same agreement. Delivery of an executed counterpart of this Amendment electronically or by facsimile shall be effective as delivery of an original executed counterpart of this Amendment.

(e) This Amendment constitutes the sole and entire agreement between the Parties with respect to the subject matter contained herein, and supersedes all prior and contemporaneous understandings, agreements, representations, and warranties, both written and oral, with respect to such subject matter.

IN WITNESS WHEREOF, the Parties have executed this Amendment as of the date first written above.

ASP Isotopes Inc.

By: Paul Mann

Name: Paul Mann

Title: Chief Executive Officer

ChemBridges LLC

By: S Vasnetsov

Name: Sergey Vasnetsov

Title: President

1st AMENDMENT TO EXECUTIVE EMPLOYMENT AGREEMENT

Amendment to Executive Employment Agreement, dated as of October 4, 2022 (the "Amendment"), between ASP Isotopes (Guernsey) Limited, a Guernsey corporation headquartered at Anson Court, La Route des Camps, St. Martin, Guernsey, GY4 6AD ("Company") and Paul Mann, an individual ("Executive"). The Company is a wholly owned subsidiary of ASP Isotopes Inc, a Delaware corporation headquartered at 433 Plaza Real, Suite 275, Boca Raton, Florida. 33432 ("Parent"). As used herein, the "Effective Date" of the original Agreement shall remain and the "Amendment Effective Date" shall mean 15 December, 2022 and the date signed below.

WHEREAS, the Parties have entered into an Executive Employment Agreement, dated as of October 4, 2021 (the "Original Agreement"); and

WHEREAS, the Parties desire to amend the Original Agreement subject to the conditions set forth herein.

NOW, THEREFORE, in consideration of the foregoing and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties agree as follows:

1. Definitions. Capitalized terms used and not defined in this Amendment have the respective meanings assigned to them in the Original Agreement.

2. Unless amended below, all paragraphs from the Original Agreement shall remain unchanged. The following paragraphs of the Original Agreement are hereby amended:

1. Employment and Duties. The Executive agrees to serve as the Company's Executive Chairman and/or Chief Executive Officer.

2. Term. The term of this Agreement shall commence on the Amendment Effective Date and shall continue for a period of four (4) years following the Amendment Effective Date and shall be automatically renewed for successive one (1) year periods thereafter unless either party provides the other party with written notice of his or its intention not to renew this Agreement at least three (3) months prior to the expiration of the initial term or any renewal term of this Agreement. "Employment Period" shall mean the initial four (4)-year term plus one (1)-year renewals, if any.

4. Base Salary and Board Fees. The Company agrees to pay the Executive a base salary ("Base Salary") of $480,000 per annum. Annual adjustments after the first year of the Employment Period shall be determined by the Board; provided, however, that the Base Salary may not be decreased. The Base Salary shall be paid in periodic installments in accordance with the Company's regular payroll practices.

5.(c). Equity Awards and Incentive Compensation: During the term of employment, the Executive shall be eligible to participate in any equity-based incentive compensation plan or program adopted by either the Parent or the Company (such awards under such plan or program, the "Share Awards"). The Parents' 2022 Equity Incentive Plan allows for an annual increase commencing on January 1, 2023 and on each subsequent January 1 through and including January 1, 2032 by a number of shares equal to the lesser of (i) five percent (5%) of the number of shares of Stock outstanding as of the conclusion of the Company's immediately preceding fiscal year, or (ii) such amount, if any, as the Board may determine. Therefore, annually, the Executive shall be entitled to receive an Equity Award equal to 2% (two percent) of the number of shares of Stock outstanding as of the conclusion of the Company's immediately preceding fiscal year. These shares will be granted on March 1 of each year and will vest Quarterly over a 12 month (twelve-month) period.

3. Miscellaneous.

(a) This Amendment is governed by and construed in accordance with the laws of the State of Delaware, without regard to the conflict of laws provisions of such State.

(b) This Amendment shall inure to the benefit of and be binding upon each of the Parties and each of their respective successors and permitted assigns.

(c) The headings in this Amendment are for reference only and do not affect the interpretation of this Amendment.

(d) This Amendment may be executed in counterparts, each of which is deemed an original, but all of which constitute one and the same agreement. Delivery of an executed counterpart of this Amendment electronically or by facsimile shall be effective as delivery of an original executed counterpart of this Amendment.

(e) This Amendment constitutes the sole and entire agreement between the Parties with respect to the subject matter contained herein, and supersedes all prior and contemporaneous understandings, agreements, representations, and warranties, both written and oral, with respect to such subject matter.

IN WITNESS WHEREOF, the Parties have executed this Amendment as of the date first written above.

ASP Isotopes Inc.

By: _____

Name: R. Arnscow

Title: V-P, Interim CFO.

Date: Dec 20, 2022.

By: _____

Name: Paul Mann

Title: Chief Executive Officer

Date: Dec 20, 2022

EXHIBIT 10.20

Acknowledgement of Debt

ASP Isotopes South Africa Proprietary Limited
Klydon Proprietary Limited

Dated 2022

Contents

Parties

(1) **ASP Isotopes South Africa Proprietary Limited** (formerly PDS Photonica Holdings South Africa Proprietary Limited) a private company incorporated in accordance with the laws of South Africa with registration number 2021/701779/07 (**Creditor**).

(2) **Klydon Proprietary Limited** a private company incorporated in accordance with the laws of South Africa with registration number 1997/019684/07 (**Debtor**).

Background

A The Creditor and the Debtor concluded the Principal Agreement.

B The Debtor has been unable to provide the deliverables prescribed in the Principal Agreement, at or within the time prescribed under the Principal Agreement.

C Pursuant to a meeting held between representatives of the Creditor and the Debtor on 26 August 2022, the Debtor was advised that, *inter alia* –

(i) its inability to provide the deliverables prescribed in the Principal Agreement, at or within the time prescribed under the Principal Agreement, has caused and will continue to cause the Creditor to suffer damages;

(ii) the Creditor has performance obligations to third parties which depend directly on the Debtor's ability to provide the deliverables prescribed in the Principal Agreement, which performance obligations the Creditor is unable to meet as a result of the Debtor's inability to perform its obligations under the Principal Agreement;

(iii) the Creditor's ability to perform its obligations to third parties as referred to in clause C(ii) has a significant impact on the listing by a shareholder of the Creditor on an US stock exchange and, the Company's inability to provide the deliverables prescribed in the Principal Agreement, will accordingly negatively affect such listing; and

(iv) the Creditor wishes to address the Debtor's inability to provide the deliverables prescribed in the Agreement in accordance with the Proposal, which Proposal the Debtor has agreed to implement.

D The Debtor hereby acknowledges that it is unlikely to be able to perform its obligations under the Principal Agreement on the due date for such performance and has therefore agreed to conclude this Acknowledgment of Debt.

E Should the Debtor fail to perform in terms of the Principal Agreement by the Performance Due Date, the Creditor will suffer damages in an amount equal to the Principal Debt.

F Accordingly, the Debtor acknowledges that, in the event that it fails to perform the Principal Obligation by the Performance Due Date, it will be lawfully indebted to the Creditor for the due and proper payment of the Principal Debt.

G The Debtor wishes to acknowledge its obligations and its indebtedness in terms of the Principal Debt in writing and agree to the terms, conditions and obligations set out hereunder.

Agreed terms

1 Definitions and interpretation

1.1 The headings to the clauses of this Acknowledgement of Debt are for reference purposes only and shall in no way govern or affect the interpretation of nor modify nor amplify the terms of this Acknowledgement of Debt nor any clause hereof

1.2 Capitalised terms and expressions used herein, and not defined in clause 1.3, shall bear the meanings as set out in Principal Agreement (as defined below).

1.3 Unless the context dictates otherwise, words and expressions set forth below shall bear the following meanings and cognate expressions shall bear corresponding meanings:

Acknowledgement of Debt means this document together with all annexures and appendices hereto.

Creditor's Costs means any and all legal costs incurred by the Creditor in pursuance of its claim against the Debtor on the scale as between attorney and own-client and collection commission calculated at the maximum rate permitted by the Legal Practice Council from time to time and the costs of and incidental to the negotiation and drafting of this Acknowledgement of Debt.

Debtor IP means any and all Intellectual Property owned, used or held by or licensed to the Debtor (whether registered or unregistered) from time to time including, without limitation, all enhancements, modifications, improvements, corrections and/or other changes of any nature to such Intellectual Property or any part thereof since the date of creation or development thereof and into the future.

Debtor Shares means the Debtors's shares in any and all companies in which the Debtor is registered as a shareholder as at the Signature Date and at any time thereafter until the date on which the Debtor's obligations to the Creditor as contemplated in this Acknowledgement of Debt and the Security Deed are discharged in full including, without limitation its shares in, -

(a) Klydon PET Proprietary Limited (in which the Debtor is a 49% shareholder as at the Signature Date);

(b) API LAB Pharmaceuticals Proprietary Limited (in which the Debtor is a 36% shareholder as at the Signature Date);

(c) Zargun Proprietary Limited (in which the Debtor is the sole (100%) shareholder as at the Signature Date); and

(d) Klydon GAS Proprietary Limited (in which the Debtor is a 40% shareholder as at the Signature Date),

and including all of its rights, title and interest in and to such shares.

Intellectual Property means any and all intellectual property including any and all creations of the mind that are recognised and/or capable of being protected in law from unlawful or unauthorised use by any other person, and all rights resulting from or attributable to such intellectual activity, whether acquired or protected by statute or common law and whether in terms of applicable laws in South Africa and/or any other jurisdiction, and including without limitation:

(a) patents, patent applications, inventions, petty patents, recipes, utility models, know how, show how confidential information and trade secrets, research and development, formulas, compositions, manufacturing and production processes and techniques, technical data, copyright and related rights including works of authorship, designs (including registered designs), design rights, drawings, specifications, models, methods, research and development, database rights, semiconductor topography rights, trademarks and service marks, trade names, business names, brand names, brand marks, rights in trade dress or get up, logos, domain names, social media accounts and URLs, web pages (dynamic or static), websites, layouts and web libraries, rights in unfair competition, goodwill and rights to sue for passing off and any other intellectual property rights (in each case, whether or not registered, and including all applications to register and rights to apply to register any of them, and all renewals or extensions of such rights and all rights to sue for any past or present infringement of them);

(b) all copies and tangible embodiments thereof, in each instance in whatever form or medium; and

(c) all rights or forms of protection having equivalent or similar effect in any jurisdiction.

Key Employee means Dr Hendrik Strydom, in his capacity as the Chief Technology Officer of the Debtor, and Dr Einar Ronander in his capacity as the Chief Scientific Advisor of the Debtor,

Payment Due Date means 31 December 2022, being the date on which the full amount of the Principal Debt shall be due, owing and payable by the Debtor to the Creditor.

Parties means the Creditor and Debtor and **Party** means, as the context may require, any one of them.

Performance Due Date means 31 December 2022, being the date on which the Debtor is obliged to perform the Principal Obligation under the Principal Agreement.

Principal Agreement means the contract for a turnkey molybdenum enrichment plant, dated 1 November 2021, entered into between the Creditor and the Debtor, a copy of which is attached hereto as Schedule 1.

Principal Debt means an amount of USD 6,050,000, being a reasonable estimate of the damages that the Creditor has suffered due to the breach by the Debtor of the Principal Agreement, and all other debts of any nature owing by the Debtor to Creditor and which is outstanding from time to time.

Principal Obligation means the Debtor's obligation under the Principal Agreement to provide a complete Molybdenum-100 (Mo-100) enrichment plant on the Creditor's site in accordance with the terms and conditions of the Principal Agreement and any ancillary obligations of the Debtor under the Principal Agreement.

Proposal means the document provided to the Debtor by the Creditor during a meeting held between the Parties on 26 August 2022, a copy of which is attached hereto as Schedule 2.

Remaining Agreements shall have the meaning ascribed to it in clause 3.5.

Secured Obligations means any and all obligations, claims, liabilities or indebtedness of any nature whatsoever and howsoever arising (whether actual or contingent, present or future) now or from time to time in the future owing by the Debtor to the Creditor under or in connection with the Principal Agreement, the Remaining Agreements or this Acknowledgment of Debt including, without limitation, the Principal Obligation and the Principal Debt.

Security Deed means the deed of security to be entered into between the Creditor and the Debtor on or about the Signature Date.

Signature Date means the date of signature of this Acknowledgement of Debt by the Party last signing.

Site means the Creditor's site, situated at Buildings 29 and 46, CSIR Campus, Meiring Naude Road, Brummeria, Pretoria, 0184.

VAT means value-added tax as levied in terms of the *Value-Added Tax Act 89 of 1991.*

1.4 In this Acknowledgement of Debt (unless the context requires otherwise):

(a) **days** shall be construed as calendar days unless qualified by the word **business**, in which instance a **business day** will be any day other than a Saturday, Sunday or public holiday as gazetted by the government of South Africa from time to time;

(b) a **company** includes any company, corporation or body corporate, or any other entity having a separate legal personality;

(c) **writing** means legible writing and in English and includes any form of electronic communication contemplated in the *South African Electronic Communications and Transactions Act 25 of 2002*;

(d) a **clause** shall, subject to any contrary indication, be construed as a reference to a clause hereof;

(e) an **amendment** includes a supplement, novation or re-enactment and **amended** is to be construed accordingly;

(f) **authority** means any government or governmental, administrative, fiscal or judicial authority, body, court, department, commission, tribunal, registry or any stated owned or controlled authority which principally performs governmental functions;

(g) a **calendar month** shall be construed as a named month, that is, January, February, March, April, May, June, July, August, September, October, November and December;

(h) the words **including** and in **particular** are used by way of illustration or emphasis only and shall not be construed as, nor shall they take effect as, limiting the generality of any of the preceding words;

(i) **indebtedness** shall be construed so as to include any obligation (whether incurred as principal or as surety) for the payment or repayment of money, whether present or future, actual or contingent;

(j) **law** shall be construed as any law (including statutory, common or customary law), statute, constitution, decree, judgment, treaty, regulation, directive, by-law, order, other legislative measure, directive, requirement of any government, supranational, local government, statutory or regulatory or self-regulatory or similar body or authority or court and the common law, as amended, replaced, re-enacted, restated or reinterpreted from time to time;

(k) the words **other** and **otherwise** shall not be construed eiusdem generis with any foregoing words where a wider construction is possible;

(l) a **person** shall be construed as a reference to any person, firm, company, corporation, government, state or agency of a state or any association or partnership (whether or not having separate legal personality) of two or more of the foregoing;

(m) a **regulation** means any regulation, rule, official directive of any governmental, inter-governmental or supranational body, agency, department or regulatory, self-regulatory or other authority or organisation; and

(n) **repay** (or any derivative form of that word) includes **prepay** (or any derivative form of that word).

1.5 Unless inconsistent with the context or save where the contrary is expressly indicated in this Acknowledgement of Debt:

(a) if any provision in a definition is a substantive provision conferring rights or imposing obligations on any Party, notwithstanding that it appears only in an interpretation clause, effect shall be given to it as if it were a substantive provision of this Acknowledgement of Debt;

(b) when any number of days is prescribed in this Acknowledgement of Debt, same shall be reckoned exclusively of the first and inclusively of the last day unless the last day falls on a day which is not a business day, in which case the last day shall be the immediately succeeding business day;

(c) in the event that the day for payment of any amount due in terms of this Acknowledgement of Debt should fall on a day which is not a business day, the relevant day for payment shall be the immediately succeeding business day;

(d) in the event that the day for performance of any obligation (other than a payment obligation) to be performed in terms of this Acknowledgement of Debt should fall on a day which is not a business day, the relevant day for performance shall be the immediately succeeding business day;

(e) any reference in this Acknowledgement of Debt to an enactment is to that enactment as at the Signature Date and as amended or re-enacted from time to time;

(f) any reference in this Acknowledgement of Debt or any other agreement or document shall be construed as a reference to this Acknowledgement of Debt or, as the case may be, such other agreement or document as same may have been, or may from time to time be, amended, varied, novated or supplemented;

(g) except as expressly provided for in this Acknowledgement of Debt, no provision of this Acknowledgement of Debt constitutes a stipulation for the benefit of any person (i.e. a *stipulatio alteri*) who is not a Party to this Acknowledgement of Debt;

(h) a reference to a Party includes that Party's lawful successors-in-title and permitted assigns;

(i) where any Party is required to provide any consent or approval or agree to the actions of any other Party, the request for such consent or approval or agreement shall be in writing and shall not be unreasonably withheld or delayed;

(a) references to any amount shall mean that amount exclusive of VAT, unless the amount expressly includes VAT; and

(b) if there is any conflict between any definitions in this Acknowledgement of Debt, or this Acknowledgement of Debt and the Principal Agreement, then, for purposes of interpreting any clause of the Acknowledgement of Debt or paragraph of any Schedule, the definition appearing in that clause or paragraph shall prevail over any other conflicting definition appearing elsewhere in the Acknowledgement of Debt or the Principal Agreement.

1.6 The headings to the clauses of this Acknowledgement of Debt are for reference purposes only and shall in no way govern or affect the interpretation of nor modify nor amplify the terms of this Acknowledgement of Debt nor any clause thereof.

1.7 Unless inconsistent with the context, an expression in this Acknowledgement of Debt which denotes:

(a) any one gender includes the other genders;

(b) a natural person includes an artificial person and *vice versa*; and

(c) the singular includes the plural and *vice versa*.

1.8 Where any term is defined within the context of any particular clause in this Acknowledgement of Debt, the term so defined, unless it is clear from the clause in question that the term so defined has limited application to the relevant clause, shall bear the same meaning as ascribed to it for all purposes in terms of this Acknowledgement of Debt, notwithstanding that that term has not been defined in any interpretation clause.

1.9 The rule of construction, in the event of ambiguity, that the contract shall be interpreted against the Party responsible for the drafting thereof, shall not apply in the interpretation of this Acknowledgement of Debt.

1.10 This Acknowledgement of Debt shall, to the extent permitted by applicable law be binding on and enforceable by the administrators, trustees, business rescue practitioners or liquidators of the Parties as fully and effectually as if they had signed this Acknowledgement of Debt in the first instance and reference to any Party shall be deemed to include such Party's administrators, trustees or liquidators, as the case may be.

1.11 The use of any expression in this Acknowledgement of Debt covering a process available under South African law such as winding-up (without limitation *eiusdem generis*) shall, if any of the Parties to this Acknowledgement of Debt is subject to the law of any other jurisdiction, be construed as including any equivalent or analogous proceedings under the law of such other jurisdiction.

1.12 No prior drafts of any agreement or any term sheet shall be admissible as evidence in any proceedings brought to determine any dispute arising out of this Acknowledgement of Debt between the Parties.

1.13 The expiration or termination of this Acknowledgement of Debt shall not affect such of the provisions of this Acknowledgement of Debt as expressly provide that they will operate after any such expiration or termination or which of necessity must continue to have effect after such expiration or termination, notwithstanding that the clauses themselves do not expressly provide for this.

2 The Principal Agreement

The Parties acknowledge that they are aware of and understand:

2.1 the definitions contained in the Principal Agreement, all of which are incorporated by reference into this Acknowledgement of Debt;

2.2 the terms and conditions set out in the Principal Agreement;

2.3 the obligations of the Debtor under the Principal Agreement; and

2.4 the nature and extent of the obligations assumed hereunder.

3 Specific performance and payment

3.1 The Debtor undertakes to use its best endeavours to perform the Principal Obligation in full in accordance with the terms and conditions of the Principal Agreement on or before the Performance Due Date.

3.2 In the event that the Debtor fails to perform the Principal Obligation on the Performance Due Date in accordance with clause 3.1 as read with the Principal Agreement, the Debtor acknowledges and agrees that it shall immediately become liable to the Creditor in the amount of the Principal Debt, which must be paid in full on or before the Payment Due Date into the Creditor's nominated bank account.

3.3 The Debtor will not be entitled for any reason to withhold or defer any payment due in terms of this Acknowledgement of Debt and shall not be entitled to set-off any amounts alleged to be due to it by the Creditor against any of the payments due by it in terms hereof.

3.4 The Debtor will be at liberty to pay the whole or any portion of the amounts due in terms hereof before the Payment Due Date.

3.5 The Principal Debt reflects the full outstanding obligations of the Debtor to the Creditor under the Principal Agreement and any other commercial arrangement or agreement in existence between the Parties as at the Signature Date hereof (**Remaining Agreements**), and no additional or further amounts shall be payable by the Debtor to the Creditor should the Debtor make payment of, and the Creditor receive, the Principal Debt or where, as a result of the Debtor's default as contemplated in clause 7, the Creditor successfully exercises its rights in terms of clause 8 (*Realisation*) of the Security Deed. For the sake of clarity, the Parties record and agree that –

(a) payment by the Debtor of the full amount of the Principal Debt in accordance with this Agreement; or

(b) the successful implementation and/or enforcement by the Creditor (to its satisfaction) of its rights in terms of clause 8 (*Realisation*) of the Security Deed,

shall constitute the full and final settlement of the Debtor's liability to the Creditor under the Principal Agreement and each Remaining Agreement. Accordingly, if the circumstances contemplated in points (a) or (b) of this clause 3.5 arise, the Debtor shall forthwith be discharged from its obligations to the Creditor under the Principal Agreement and each Remaining Agreement and, the Principal Agreement and every Remaining Agreement shall immediately terminate and neither Party shall have any further rights of action and/or claims against the other in terms of the provisions of the Principal Agreement or any Remaining Agreement.

4 Security

4.1 The Debtor irrevocably and unconditionally warrants and undertakes in favour of the Creditor that the Debtor will perform the Secured Obligations fully, promptly and completely as and when such Secured Obligations become due.

4.2 As security for the Debtor's obligations in terms of this Acknowledgement of Debt, the Debtor irrevocably and unconditionally undertakes in favour of the Creditor that it shall execute the Security Deed in order to:

(a) cede, assign, transfer and delegate all of its rights, title and interest in and to, and obligations under, the Debtor IP;

(b) pledge, cede, assign, transfer and delegate all of its rights, title and interest in and to, and obligations under, the Debtor Shares; and

(c) pledge and assign all of its movable corporeal assets situated on the Site,

to the Creditor as security based on the pledge construction.

4.3 The security provided in terms of this clause 4 is a continuing covering security and shall extend to the ultimate balance of the sums payable by the Debtor under the Secured Obligations, regardless of any intermediate payment or discharge in whole or in part.

5 Certificate of proof

A certificate signed by any director of the Creditor (whose authority and appointment it shall not be necessary to prove) as to the amount owing by the Debtor from time to time and that the date of payment of such amount has arrived shall be:

5.1 binding upon the Debtor and *prima* facie proof of the amount of its indebtedness hereunder; and

5.2 valid and enforceable as a liquid document against the Debtor for the purposes of obtaining judgment in any competent court.

6 Renunciation

The Debtor hereby expressly renounce the benefits arising from the legal exceptions of a lack of an actionable debt (non causa debiti), no money being paid over (non numeratae pecuniae), a mistake in the calculation of the amount due (errore calculi), "revision of accounts", and "no value received" and declares that it is acquainted with the meaning and effect thereof and its renunciation of such benefits.

7 Default

7.1 Notwithstanding anything to the contrary herein contained, all amounts payable in terms hereof including, without limitation, the Principal Debt, shall become immediately due and payable without notice, if the Debtor:

(a) commits a breach of any term or condition of this Acknowledgement of Debt, all of which are material; or

(b) has a judgment granted against it and does not satisfy the judgment within five days thereafter; or

(c) commits any act of insolvency as stipulated in the *Insolvency Act 24 of 1936* or makes any compromise with any other creditor, or is placed in provisional or final liquidation; or

(d) purports to dispose of the Debtor IP or any of its assets without the prior written consent of the Creditor; or

(e) purports to dispose of all or any portion of, or in any manner encumber. the Debtor Shares without the prior written consent of the Creditor; or fails to inform the Creditor forthwith of any other creditor or person who institutes or intends instituting proceedings at law (whether by action, motion, petition or otherwise) against the Debtor in any court of law; or

(f) fails or ceases to conduct its business in the ordinary course consistent with past practice or alters the existing nature or scope of its business; or

(g) changes the employment terms of, dismisses, or gives notice of dismissal to any Key Employee; or

(h) any Key Employee terminates its employment with the Debtor, for any reason whatsoever.

7.2 Without prejudice to any of the Creditor's rights in terms hereof, should the Debtor fail to make payment in full of the Principal Debt by the Payment Due Date or should the Principal Debt become immediately due and payable as contemplated in clause 7.1, the Creditor may, subject to any other rights it may have whether in contract or in law, without further notice or demand to the Debtor:

(a) institute legal proceedings to recover the Principal Debt; and/or

(b) immediately exercise its rights under the Security Deed and any other security afforded to it by the Debtor.

7.3 The Debtor agrees that in the event of any breach by it of any of the terms of this Acknowledgement of Debt and in the event that legal action is instituted by the Creditor in terms hereof, the Debtor will be liable to pay the Creditor's Costs.

8 Cession, assignment and delegation

8.1 The Debtor shall not be entitled to cede any of its rights or delegate any of its obligations under this Acknowledgement of Debt to another person without the prior written consent of the Creditor.

8.2 To the extent that any cession and/or delegation contemplated in this clause 8 gives rise to a splitting of claims against the Debtor, the Debtor hereby consents to such splitting of claims.

8.3 The Creditor shall be entitled to cede and/or delegate its rights and/or obligations under this Acknowledgement of Debt, and the Parties each hereby irrevocably and unconditionally consent to any splitting of rights or claims which may arise from such a cession and transfer.

9 Notices

9.1 The Parties select as their respective *domicilia citandi* et *executandi* the following physical addresses, and for the purposes of giving or sending any notice provided for or required under this Acknowledgement of Debt, the said physical addresses as well as the following email addresses:

(a) in the case of the Creditor:

(i) address: Unit 19, 2nd Floor, 1 Melrose Boulevard, Melrose Arch, Gauteng, ;

(ii) email: rainscow@aspisotopes.com;

(iii) and is marked for the attention of: Robert Ainscow,

(b) in the case of the Debtor to:

(i) address: Building 46, Meiring Naude Road, Brummeria, Pretoria, 0184;

(ii) email: carl.ronander@klydon.co.za;

(iii) and is marked for the attention of: Carl Ronander,

provided that a Party may change its*domicilium* or its address for the purposes of notices to any other physical address or telefax number by written notice to the other Party to that effect. Such change of address will be effective five business days after receipt of the notice of the change.

9.2 All notices to be given in terms of this Acknowledgement of Debt will be given in writing and will:

(a) be delivered by hand or sent by email;

(b) if delivered by hand during business hours, be presumed to have been received on the date of delivery. Any notice delivered after business hours or on a day which is not a business day will be presumed to have been received on the following business day; and

(c) if sent by email during business hours, be presumed to have been received on the date of successful transmission of the email. Any email sent after business hours or on a day which is not a business day will be presumed to have been received on the following business day.

9.3 Notwithstanding the above, any notice given in writing, and actually received by the Party to whom the notice is addressed, will be deemed to have been properly given and received, notwithstanding that such notice has not been given in accordance with this clause 9.2.

10 Variation

The Debtor agrees that no variation, addition, amendment or consensual cancellation of any of the terms and conditions of this Acknowledgement of Debt shall be valid and enforceable unless reduced to writing and signed by each of the Parties.

11 National Credit Act

For the avoidance of doubt, it is specifically recorded and agreed that the*National Credit Act 34 of 2005*has no application to this Acknowledgement of Debt.

12 General

12.1 **Applicable law**

This Acknowledgement of Debt is to be governed, interpreted and implemented in accordance with the laws of South Africa.

12.2 **No representations or implied terms**

(a) It is recorded and agreed that there are no conditions precedent suspending the operation of this Acknowledgement of Debt and no warranties, promises, representations or inducements of whatsoever nature have been made or given to the Debtor to induce it to sign this Acknowledgement of Debt and bind itself in terms thereof.

(b) No Party shall be bound by any express or implied term, representation, warranty, promise or the like, not recorded in this Acknowledgement of Debt or the Principal Agreement.

12.3 **No indulgences**

No latitude, extension of time or other indulgence which may be given or allowed by any Party to the other Party in respect of the performance of any obligation hereunder, and no delay or forbearance in the enforcement of any right of any Party arising from this Acknowledgement of Debt and no single or partial exercise of any right by any Party under this Acknowledgement of Debt, shall in any circumstances be construed to be an implied consent or election by such Party or operate as a waiver or a novation of or otherwise affect any of the Party's rights in terms of or arising from this Acknowledgement of Debt or estop or preclude any such Party from enforcing at any time and without notice, strict and punctual compliance with each and every provision or term hereof. Failure or delay on the part of any Party in exercising any right, power or privilege under this Acknowledgement of Debt will not constitute or be deemed to be a waiver thereof, nor will any single or partial exercise of any right, power or privilege preclude any other or further exercise thereof or the exercise of any other right, power or privilege.

12.4 **Continuing effectiveness of certain provisions**

The expiration or termination of this Acknowledgement of Debt shall not affect such of the provisions of this Acknowledgement of Debt as expressly provide that they will operate after any such expiration or termination or which of necessity must continue to have effect after such expiration or termination, notwithstanding that the clauses themselves do not expressly provide for this.

12.5 **Costs**

The Parties shall each bear their own costs incurred in connection with the negotiation and preparation of this Acknowledgement of Debt.

12.6 **Cumulative remedies**

Unless otherwise expressly provided in this Acknowledgement of Debt, the rights and remedies under this Acknowledgement of Debt are in addition to, and do not exclude, any rights or remedies provided by law.

12.7 **New laws and inability to perform**

If any law comes into operation subsequent to the Signature Date which law affects any aspect or matter or issue contained in this Acknowledgement of Debt, the Parties undertake to enter into negotiations in good faith regarding a variation of this Acknowledgement of Debt in question in order to ensure that neither this Acknowledgement of Debt nor its implementation constitutes a contravention of such law.

12.8 **Independent advice**

Each of the Parties acknowledges that they have been free to secure independent legal and other professional advice as to the nature and effect of all of the provisions of this Acknowledgement of Debt and that they have either taken such independent legal and other advice or dispensed with the necessity of doing so. Further, each of the Parties acknowledges that all of the provisions of this Acknowledgement of Debt and the restrictions herein contained are fair and reasonable in all the circumstances and are part of the overall intention of the Parties in connection with this Acknowledgement of Debt.

12.9 **Waiver of immunity**

The Pledgor irrevocably and unconditionally waives any right it may have to claim for itself or any of its assets immunity from suit, execution, attachment or other legal process.

12.10 **Provisions severable**

Each provision in this Acknowledgement of Debt is severable from all others, notwithstanding the manner in which they may be linked together or grouped grammatically, and if in terms of any judgment or order, any provision, phrase, sentence, paragraph or clause is found to be defective or unenforceable for any reason, the remaining provisions, phrases, sentences, paragraphs and clauses shall nevertheless continue to be of full force. In particular, and without limiting the generality of the aforegoing, the Parties acknowledge their intention to continue to be bound by this Acknowledgement of Debt notwithstanding that any provision may be found to be unenforceable or void or voidable, in which event the provision concerned shall be severed from the other provisions, each of which shall continue to be of full force.

12.11 **Signature**

(a) This Acknowledgement of Debt is signed by the Parties on the dates and at the places indicated below.

(b) This Acknowledgement of Debt may be executed in counterparts, each of which shall be deemed an original, and all of which together shall constitute one and the same Acknowledgement of Debt as at the date of signature of the Party last signing one of the counterparts.

(c) The persons signing this Acknowledgement of Debt in a representative capacity warrant their authority to do so.

(d) The Parties record that it is not required for this Acknowledgement of Debt to be valid and enforceable that a Party shall initial the pages of this Acknowledgement of Debt and/or have its signature of this Acknowledgement of Debt verified by a witness.

12.12 **Variation, cancellation and waiver**

(a) No addition to or variation, deletion from, or agreed cancellation of all or any clauses or provisions of this Acknowledgement of Debt will be of any force or effect unless in writing and signed by the Parties.

(b) No waiver, suspension or postponement by any Party of any right arising out of or in connection with this Acknowledgement of Debt shall be of any force or effect unless in writing and signed by such Party. Any such waiver, suspension or postponement will be effective only in the specific instance and for the purpose given.

12.13 **Whole agreement**

This Acknowledgement of Debt contains all the express provisions agreed on by the Parties with regard to the subject matter of the Acknowledgement of Debt, and supersedes and novates in its entirety any previous understandings or agreements among the Parties in respect thereof, and the Parties waive the right to rely on any alleged provision not expressly contained in this Acknowledgement of Debt.

13 Jurisdiction

13.1 The Debtor hereby irrevocably and unconditionally consents and submits to the non-exclusive jurisdiction of the High Court of South Africa, Gauteng Provincial Division, Pretoria (or any successor to that division) in regard to all matters arising from this Acknowledgement of Debt (including a dispute relating to the existence, validity or termination of this Acknowledgement of Debt or any non-contractual obligation arising out of or in connection with this Acknowledgement of Debt) (a **Dispute**).

13.2 The Debtor agrees that the High Court of South Africa, Gauteng Provincial Division, Pretoria (or any successor to that division) is the most appropriate and convenient court to settle Disputes and accordingly:

(a) it will not argue to the contrary;

(b) it hereby waives any objection to the jurisdiction of that court on the grounds of venue or *forum non conveniens* or any similar grounds; and

(c) it consents to service of process in any manner permitted by applicable law.

13.3 This clause 13 is for the benefit of the Creditor only, provided that if the Pledgee institutes action in the High Court of South Africa, Gauteng Provincial Division, Pretoria (or any successor to that division), the Debtor shall be entitled to raise any counterclaim it may have in such court. As a result, the Creditor shall not be prevented from taking proceedings relating to a Dispute in any other courts with jurisdiction as it sees fit.

13.4 To the extent allowed by law, the Creditor may take concurrent proceedings in any number of jurisdictions and the Debtor shall be entitled to raise any counterclaim it may have in any jurisdiction in which the Creditor takes any concurrent proceedings.

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Schedule 1 Principal Agreement

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Schedule 2 Creditor proposal

[Page intentionally left blank as cover page for this schedule]

Signature page

Signed for and on behalf of the behalf of**ASP ISOTOPES SOUTH AFRICA PROPRIETARY LIMITED**
by:

Signature

Name (block capitals)

Dated

Signed for and on behalf of the behalf of**KLYDON PROPRIETARY LIMITED**
by:

Signature

Name (block capitals)

Dated

EXHIBIT 10.21

EXECUTION VERSION 25 November 2022

Deed of Security

Klydon Proprietary Limited (as Pledgor)

ASP Isotopes South Africa Proprietary Limited (as Pledgee)

Contents

Parties

(1) **Klydon Proprietary Limited** a private company incorporated in accordance with the laws of South Africa with registration number 1997/019684/07 (**Pledgor**).

(2) **ASP Isotopes South Africa Proprietary Limited** (formerly PDS Photonica Holdings South Africa Proprietary Limited) a private company incorporated in accordance with the laws of South Africa with registration number 2021/701779/07 (**Pledgee**).

Background

A As security for the due performance of the Secured Obligations, the Pledgor has agreed to cede *in securitatem debiti* all of the Ceded Rights and to pledge the Pledged Assets to the Pledgee in each case on the terms and subject to the conditions set out in this Agreement.

B The Parties wish to record in writing their agreement in respect of the above and matters ancillary thereto.

Agreed terms

1 Definitions and interpretation

1.1 The headings to the clauses of this Agreement are for reference purposes only and shall in no way govern or affect the interpretation of nor modify nor amplify the terms of this Agreement nor any clause hereof

1.2 Capitalised terms and expressions used herein, and not defined in clause 1.3, shall bear the meanings as set out in the Acknowledgement of Debt Agreement (as defined below).

1.3 Unless the context dictates otherwise, words and expressions set forth below shall bear the following meanings and cognate expressions shall bear corresponding meanings:

Acknowledgement of Debt Agreement means the acknowledgement of debt agreement entered into or to be entered into between the Pledgor and the Pledgee contemporaneously with this Agreement.

Agreement means this Deed of Security Agreement and its Schedules.

Ceded Rights means all of the Pledgor's rights of any nature whatsoever to and interests of any nature whatsoever in the Pledged Assets, in each case, whether actual, prospective or contingent, direct or indirect, whether a claim for the payment of money (whether in respect of interest, principal or otherwise) or for the performance of any other obligation, and whether or not the said rights and interests were within the contemplation of the Parties as at the Signature Date.

Default means any breach by the Pledgor of any of the terms of this Agreement, the Acknowledgement of Debt Agreement or the Principal Agreement, including for the avoidance of doubt non-payment of the Principal Debt.

Discharge Date means the date on which the Pledgee confirms in writing to the Pledgor that all of the Secured Obligations have been discharged by the Pledgor in full to the satisfaction of the Pledgee.

Documents of Title shall bear the meaning defined in clause 4.1.

Intellectual Property has the meaning ascribed to it in the Acknowledgement of Debt Agreement.

Parties means, collectively, the Pledgor and the Pledgee and **Party** means, as the context requires, any of them.

Pledged Assets means all of the Pledgor's rights, title and interest in and to –

(a) the movable corporeal assets owned or held by the Pledgor, situated at the Site, as more fully detailed in Schedule 1 hereto;

(b) the Pledged Shares; and

(c) the Pledged IP.

Pledge and Cession means the pledge and cession in *securitatem debiti* contemplated by this Agreement.

Pledged IP means the "*Debtor IP*" as such term is defined in the Acknowledgement of Debt Agreement.

Pledged Shares means the "*Debtor Shares*" as such term is defined in the Acknowledgement of Debt Agreement.

Principal Agreement has the meaning ascribed to it in the Acknowledgement of Debt Agreement.

Principal Debt has the meaning ascribed to it in the Acknowledgement of Debt Agreement.

Secured Obligations has the meaning ascribed to it in the Acknowledgement of Debt Agreement.

Site has the meaning ascribed to it in the Acknowledgement of Debt Agreement.

Signature Date means the date of signature of this Agreement by the Party last signing.

VAT means value-added tax as levied in terms of the *Value-Added Tax Act 89 of 1991.*

1.4 In this Agreement (unless the context requires otherwise):

(a) **days** shall be construed as calendar days unless qualified by the word **business**, in which instance a **business day** will be any day other than a Saturday, Sunday or public holiday as gazetted by the government of South Africa from time to time;

(b) a **company** includes any company, corporation or body corporate, or any other entity having a separate legal personality;

(c) **writing** means legible writing and in English and includes any form of electronic communication contemplated in the *South African Electronic Communications and Transactions Act 25 of 2002*;

(d) a **clause** shall, subject to any contrary indication, be construed as a reference to a clause hereof;

(e) an **amendment** includes a supplement, novation or re-enactment and **amended** is to be construed accordingly;

(f) **authority** means any government or governmental, administrative, fiscal or judicial authority, body, court, department, commission, tribunal, registry or any stated owned or controlled authority which principally performs governmental functions;

(g) a **calendar month** shall be construed as a named month, that is, January, February, March, April, May, June, July, August, September, October, November and December;

(h) **continuing**, in the context of a default, means that such default has not been remedied or waived within any applicable grace period;

(i) the words **including** and **in particular** are used by way of illustration or emphasis only and shall not be construed as, nor shall they take effect as, limiting the generality of any of the preceding words;

(j) **indebtedness** shall be construed so as to include any obligation (whether incurred as principal or as surety) for the payment or repayment of money, whether present or future, actual or contingent;

(k) **law** shall be construed as any law (including statutory, common or customary law), statute, constitution, decree, judgment, treaty, regulation, directive, by-law, order, other legislative measure, directive, requirement of any government, supranational, local government, statutory or regulatory or self-regulatory or similar body or authority or court and the common law, as amended, replaced, re-enacted, restated or reinterpreted from time to time;

(l) the words **other** and **otherwise** shall not be construed *eiusdem generis* with any foregoing words where a wider construction is possible;

(m) a **person** shall be construed as a reference to any person, firm, company, corporation, government, state or agency of a state or any association or partnership (whether or not having separate legal personality) of two or more of the foregoing;

(n) a **regulation** means any regulation, rule, official directive of any governmental, inter-governmental or supranational body, agency, department or regulatory, self-regulatory or other authority or organisation;

(o) **repay** (or any derivative form of that word) includes **prepay** (or any derivative form of that word); and

(p) **security interest** means any mortgage, pledge, lien, charge, assignment, cession, hypothecation or security interest or any other agreement or arrangement having the effect of conferring security.

1.5 Unless inconsistent with the context or save where the contrary is expressly indicated in this Agreement:

(a) if any provision in a definition is a substantive provision conferring rights or imposing obligations on any Party, notwithstanding that it appears only in an interpretation clause, effect shall be given to it as if it were a substantive provision of this Agreement;

(b) when any number of days is prescribed in this Agreement, same shall be reckoned exclusively of the first and inclusively of the last day unless the last day falls on a day which is not a business day, in which case the last day shall be the immediately succeeding Business Day;

(c) in the event that the day for payment of any amount due in terms of this Agreement should fall on a day which is not a business day, the relevant day for payment shall be the immediately succeeding business day;

(d) in the event that the day for performance of any obligation (other than a payment obligation) to be performed in terms of this Agreement should fall on a day which is not a business day, the relevant day for performance shall be the immediately succeeding business day;

(e) any reference in this Agreement to an enactment is to that enactment as at the Signature Date and as amended or re-enacted from time to time;

(f) any reference in this Agreement or any other agreement or document shall be construed as a reference to this Agreement or, as the case may be, such other agreement or document as same may have been, or may from time to time be, amended, varied, novated or supplemented;

(g) except as expressly provided for in this Agreement, no provision of this Agreement constitutes a stipulation for the benefit of any person (i.e. a *stipulatio alteri*) who is not a Party to this Agreement;

(h) a reference to a Party includes that Party's lawful successors-in-title and permitted assigns; and

(i) where any Party is required to provide any consent or approval or agree to the actions of any other Party, the request for such consent or approval or agreement shall be in writing and shall not be unreasonably withheld or delayed;

(j) references to any amount shall mean that amount exclusive of VAT, unless the amount expressly includes VAT; and

(k) if there is any conflict between any definitions in this Agreement, or this Agreement and the Acknowledgement of Debt or Principal Agreement, then, for purposes of interpreting any clause of this Agreement or paragraph of any Schedule, the definition appearing in that clause or paragraph shall prevail over any other conflicting definition appearing elsewhere in the Agreement, the Acknowledgement of Debt or the Principal Agreement.

1.6 The headings to the clauses of this Agreement are for reference purposes only and shall in no way govern or affect the interpretation of nor modify nor amplify the terms of this Agreement nor any clause thereof.

1.7 Unless inconsistent with the context, an expression in this Agreement which denotes:

(a) any one gender includes the other genders;

(b) a natural person includes an artificial person and *vice versa*; and

(c) the singular includes the plural and *vice versa*.

1.8 Where any term is defined within the context of any particular clause in this Agreement, the term so defined, unless it is clear from the clause in question that the term so defined has limited application to the relevant clause, shall bear the same meaning as ascribed to it for all purposes in terms of this Agreement, notwithstanding that that term has not been defined in any interpretation clause.

1.9 The rule of construction, in the event of ambiguity, that the contract shall be interpreted against the Party responsible for the drafting thereof, shall not apply in the interpretation of this Agreement.

1.10 This Agreement shall, to the extent permitted by applicable law be binding on and enforceable by the administrators, trustees or liquidators of the Parties as fully and effectually as if they had signed this Agreement in the first instance and reference to any Party shall be deemed to include such Party's administrators, trustees or liquidators, as the case may be.

1.11 The use of any expression in this Agreement covering a process available under South African law such as winding-up (without limitation *eiusdem generis*) shall, if any of the Parties to this Agreement is subject to the law of any other jurisdiction, be construed as including any equivalent or analogous proceedings under the law of such other jurisdiction.

1.12 No prior drafts of any agreement or any term sheet shall be admissible as evidence in any proceedings brought to determine any dispute arising out of this Agreement between the Parties.

1.13 The expiration or termination of this Agreement shall not affect such of the provisions of this Agreement as expressly provide that they will operate after any such expiration or termination or which of necessity must continue to have effect after such expiration or termination, notwithstanding that the clauses themselves do not expressly provide for this.

2 Pledge and Cession in security

2.1 With effect from the Signature Date, the Pledgor hereby pledges to the Pledgee all of the Pledged Assets and cedes, transfers and makes over in *securitatem debiti* to the Pledgee all of the Ceded Rights, as a continuing general covering collateral security for the due, proper and timely payment, performance and discharge of all of the Secured Obligations, on the terms and conditions set out in this Agreement, which pledge and cession the Pledgee hereby accepts.

2.2 If, for any reason, any security interest intended to be created under this Agreement is or becomes illegal, invalid or unenforceable in any respect, then:

(a) the pledge and/or cession of those illegal, invalid or unenforceable security interests shall be severed from this Agreement; and

(b) this Agreement and all the security interests created over the remaining Pledged Assets and Ceded Rights shall continue in full force and effect.

2.3 To the extent that the Pledgor receives additional Pledged Assets after the Signature Date, the Pledgor hereby pledges to the Pledgee all such Pledged Assets and cedes in security to the Pledgee all of the Ceded Rights relating to such additional Pledged Assets.

2.4 If the Pledgor has ceded or pledged any of the Pledged Assets and/or Ceded Rights to any other person prior to the Signature Date, this Agreement shall (without affecting the operation of this Agreement in respect of those of the Pledged Assets and/or Ceded Rights which have not been so ceded or pledged to another person) constitute a cession in *securitatem debiti* to the Pledgee of the Pledgor's reversionary rights or other interests (including all of the Pledgor's rights of action against such other person/s and any rights which now or may in the future vest in the Pledgor pursuant to such reversionary rights) in respect of those Pledged Assets and/or Ceded Rights, which are hereby ceded in *securitatem debiti* to the Pledgee with effect from the Signature Date, which cession the Pledgee hereby accepts. The Pledgee shall be entitled to notify any such other person of this Agreement, and if any such other person is entitled to possession of any of the documents referred to in clause 4 (*Delivery of documents of title and authorisations to the Pledgee*), then the Pledgor shall deliver photocopies of the documents to the Pledgee, and as soon as practicable upon such person ceasing to be entitled to possession or gives up possession, the Pledgor shall deliver the relevant documents to the Pledgee.

2.5 Notwithstanding anything to the contrary contained herein or in any other agreement between the Parties, the Pledgor remains liable to perform all its duties and obligations, whether contractual or otherwise, in respect of the Pledged Assets and the Ceded Rights and nothing in this Agreement nor the exercise by the Pledgee of any rights under the Principal Agreement or Acknowledgement of Debt Agreement shall constitute a delegation to or an acceptance by the Pledgee of any obligations of the Pledgor or any other person.

2.6 This Pledge and Cession is intended to operate as a pledge and a cession of each part of and all of the Pledged Assets and the Ceded Rights individually and collectively.

2.7 The Pledge and Cession contemplated by this Agreement operates as a security cession and pledge and not as an out and out or outright cession and the Pledgor retains bare ownership of the Pledged Assets and the Ceded Rights, subject to the rights of the Pledgee as a secured creditor.

3 Undertakings by the Pledgor

3.1 The Pledgor hereby undertakes and agrees from the Signature Date until the Discharge Date, that it shall:

(a) not do any act or suffer any omission, and will not permit any other person to do any act or suffer any omission, which will have or is calculated to have the effect of diminishing or adversely affecting the rights of the Pledgee hereunder or the value or effectiveness of the security conferred by this Agreement;

(b) not exercise any or all of its rights or votes in respect of the Pledged Assets and/or the Ceded Rights:

(i) in a manner which is likely to (i) be prejudicial to the validity or enforceability of this Agreement, (ii) impair the value of any of the Pledged Assets and/or the Ceded Rights, or (iii) be otherwise prejudicial to the Pledgee; or

(ii) which are or will be in conflict with the rights of the Pledgee in terms of this Agreement, the Acknowledgement of Debt Agreement and/or the Principal Agreement;

(c) save up until the Signature Date, at its own cost, to keep the Pledged Assets and the Ceded Rights free of judicial attachments and any other encumbrances of any nature at all times;

(d) sign all other documents as are necessary to give effect to this Agreement;

(e) prevent any variation of the rights relating to the Pledged Assets and/or Ceded Rights or any of them, which could reduce their value;

(f) after the occurrence of a Default which is continuing, forthwith pay over to the Pledgee any interest, distribution or other benefit of any nature accrued and/or received in respect of the Pledged Assets and/or the Ceded Rights held by it on and after the date of occurrence of such Default which is continuing, by depositing the same into such nominated account as the Pledgee may from time to time direct in writing and such amounts shall be applied towards the repayment of the Secured Obligations in accordance with the provisions of the Acknowledgement of Debt Agreement;

(g) not dispose of, cede, assign, transfer or in any other manner encumber or deal with the Pledged Assets and the Ceded Rights without the prior written approval of the Pledgee;

(h) timeously comply in full with its obligations in respect of the Pledged Assets and/or Ceded Rights from time to time; and

(i) take all appropriate steps required from time to time for the care, preservation and protection of the Pledged Assets and the Ceded Rights and the rights of the Pledgee under this Agreement.

3.2 The Pledgor waives for the benefit of the Pledgee any and all rights it may have in respect of the Pledged Assets and/or the Ceded Rights which conflict with or may restrict the rights of the Pledgee under this Agreement.

4 Delivery of documents of title and authorisations to the Pledgee

4.1 The Pledgor shall on written demand made by the Pledgee to the Pledgor deliver to the Pledgee all relevant ancillary or incidental documents of whatsoever nature (if any) as may otherwise be necessary or reasonably required by the Pledgee to exercise any or all of its rights under this Agreement (all such documents referred to in this clause 4.1 are hereinafter referred to as the Documents of Title).

4.2 The words "*cedes*", "*transfers*" and "*makes over*" when used in clause 2 embraces and means both the agreement to cede, and the transfer to the Pledgee of the Ceded Rights, and accordingly the failure to deliver any documents to the Pledgee shall not invalidate or render this Agreement or any part thereof invalid or unenforceable.

4.3 The Pledgee shall be entitled to retain possession of the Documents of Title and to deal with them in accordance with the provisions of this Agreement until the Discharge Date, whereupon the Documents of Title shall be returned to the Pledgor.

4.4 The Pledgor shall deliver to the Pledgee any other documents relating to the Pledged Assets and/or the Ceded Rights for which it may at any time reasonably call, which documents shall be delivered to the Pledgee within a reasonable period, as agreed between the Pledgee and the Pledgor and, failing such agreement, within 5 (five) business days of such request.

4.5 The Pledgor shall generally do everything that reasonably may be required by the Pledgee for the purposes of and to give effect to this Agreement, failing which the Pledgee may, if possible, attend thereto and recover from the Pledgor any expenses incurred in doing so.

4.6 A breach by the Pledgor of its obligations to deliver any document and/or instrument in terms of this clause 4 shall not:

(b) affect the legality, validity or binding effects of the cession and pledge of the Ceded Rights and Pledged Assets embodied in this Agreement; or

(c) affect, or in any manner, impinge upon the rights of, the Pledgee under this Agreement.

5 Perfection

Notwithstanding the provisions of clause 4, the Pledgor shall within 14 (fourteen) days of the Signature Date deliver to the Pledgee for the purposes of perfecting the Pledgee's rights under this Agreement in respect of the Pledged Shares:

5.1 the original share certificates in respect of its Pledged Shares;

5.2 share transfer forms in respect of the Pledged Shares duly completed and signed, but undated and otherwise in blank as to the transferee; and

5.3 resolutions by the directors of the relevant companies in which the Pledged Shares are held, noting and irrevocably authorising the pledging of the Pledged Shares in terms of this Agreement and the transfer thereof to the Pledgee or any third party upon realisation in terms of clause 8.

6 Voting

Notwithstanding that the rights to vote in respect of the Pledged Shares are ceded and pledged in*securitatem debiti* to the Pledgee, as are all other rights attaching to the Pledged Shares, whilst this Agreement remains in force and provided that the Pledgee has not exercised its rights in terms of clause 8, the Pledgor shall be entitled to exercise all voting rights in respect of the Pledged Shares, and the Pledgee will not exercise such voting rights.

7 Rights, powers and privileges attaching to the Pledged Assets and the Ceded Rights

This Agreement operates in respect of all rights, powers and privileges attaching to the Pledged Assets and the Ceded Rights, and such rights, powers and privileges shall accordingly vest in the Pledgee, with the power to exercise them either in its own name or in the name of the Pledgor, upon the occurrence of any Default in accordance with the terms of the Acknowledgement of Debt Agreement. Alternatively, the Pledgor shall, if the Pledgee so directs upon the occurrence of any Default in accordance with the terms of the Acknowledgement of Debt Agreement, exercise its rights, powers and privileges in its own name and in accordance with the Pledgee's directions to the greatest extent permitted by applicable law.

8 Realisation

8.1 If any Default has occurred and is continuing, the Pledgor hereby irrevocably and unconditionally authorises and empowers the Pledgee, without any further authority or consent of any nature whatsoever required from the Pledgor, and in the name of the Pledgee or its nominee or in the name of the Pledgor to:

(a) exercise all or any of the rights, powers and privileges attached to the Pledged Assets, powers and privileges and enforce all or any obligations attaching to the Pledged Assets and/or the Ceded Rights in such manner and on such terms as the Pledgee in its sole discretion deems fit and/or

(b) receive or collect payment for, delivery of and/or performance in respect of, the Pledged Assets and/or the Ceded Rights in its own name; and/or

(c) at the election of the Pledgee:

(i) to sell or otherwise realise the Pledged Assets and/or the Ceded Rights or any one of them either by public auction; and/or

(ii) to sell or otherwise realise the Pledged Assets and/or Ceded Rights by private treaty on reasonable notice to the Pledgor not exceeding 10 (ten) business days; and/or

(iii) to take over the Pledged Assets and/or the Ceded Rights at a fair value which, in the absence of agreement within 10 (ten) business days after delivery by the Pledgee to the Pledgor of a written notice stating that the Pledgee intends to exercise its rights pursuant to this clause 8.1(c)(iii), shall be determined by an independent accountant or merchant bank agreed to by the Parties or, failing agreement within 2 (two) business days, appointed, at the request of either the Pledgee or the Pledgor, by the President for the time being of the Southern African Institute of Chartered Accountants (or the successor body thereto) (which independent accountant or merchant bank shall act as an expert and not as an arbitrator, shall be instructed to make his determination within 10 (ten) business days after being requested to do so and shall determine the liability for his charges which will be paid accordingly); and/or

(iv) to institute any legal proceedings which the Pledgee may deem necessary in connection with any sale or other realisation or transfer of any of the Pledged Assets and/or the Ceded Rights by the Pledgee or its nominees; and/or

(v) to convey valid title in the Pledged Assets and/or the Ceded Rights to the Pledgee or any purchaser thereof; and/or

(vi) to take all such further or other steps as the Pledgee may consider necessary to deal with the Pledged Assets and/or the Ceded Rights.

8.2 Upon the Pledgee taking any actions in terms of clause 8.1, or otherwise as required by the Pledgee, the Pledgor shall on demand by the Pledgee:

(a) notify any relevant person required by the Pledgee, in writing that payment for, delivery of or performance in respect of the Pledged Assets and/or the Ceded Rights must be made to the Pledgee, and that payment, delivery or performance to the Pledgor or to anyone else will not constitute valid payment, delivery or performance, and the Pledgee shall be entitled to do likewise. The Pledgor shall on demand by the Pledgee provide proof that such notification has been duly given;

(b) permit the Pledgee or any of its representatives and professional advisors free access at all reasonable times and on reasonable notice at the risk and cost of the Pledgor to:

(i) the Site, Pledgor's premises, records, accounts (including its general ledger), books and assets as that person may require; and

(ii) meet and discuss matters with key management;

(c) refuse to accept any payment, delivery or performance tendered in respect of any of the Pledged Assets and/or the Ceded Rights in order that such payment, delivery or performance be tendered to the Pledgee; and

(d) at its own cost, carry out any lawful directions the Pledgee may give in regard to the realisation of the Pledged Assets and/or the Ceded Rights and sign any document or do any other lawful act necessary to vest the Pledged Assets and/or the Ceded Rights in the Pledgee, to enable the sale or disposal of the Pledged Assets and/or the Ceded Rights, which may otherwise be necessary or required to perfect the Pledge and Cession created in this Agreement; and.

(e) at its own cost, where the Pledgee exercises its rights pursuant to clause 8.1(c)(iii) and/or 8.1(c)(v), cede, transfer and assign its rights and delegate its obligations under any document or agreement incidental or necessary to enable the Pledgee to, *inter alia*, use, implement, perform or commercialise the Pledged Assets and/or the Ceded Rights.

8.3 The Parties acknowledge and agree that:

(a) the Secured Obligations are obligations of a commercial nature; and

(b) the application of the provisions of this clause 8 will confer upon the Pledgee certain procedural advantages which, in the light of the commercial nature of the transaction secured by the Pledge and Cession, are fair, reasonable and necessary to ensure that the Pledgee does not suffer unfair commercial prejudice.

8.4 The provisions of this clause 8 are without prejudice to all other rights and remedies which the Pledgee may have at law and shall be severable and divisible from the other terms and conditions of this Agreement if same are found to be invalid or unenforceable. In this regard the Parties record that they would have concluded a cession and pledge on all the other terms hereof even if the *parate executie* terms included herein were not agreed upon and accordingly even if *the parate executie* terms are found to be invalid or unenforceable, the remaining provisions of this Agreement are intended to remain of full force and effect.

8.5 Notwithstanding anything to the contrary contained in this Agreement, the Pledgee shall not be obliged to take any particular steps to collect or otherwise enforce its rights in respect of the Pledged Assets and/or the Ceded Rights.

8.6 The Parties record and agree that, should the Pledgee exercises all or any of the rights, powers and privileges attached to the Pledged IP as contemplated in this clause 8 and any such exercise or action is subsequently held by a competent court to be unenforceable or void or voidable, the license agreement entered into between the Pledgor (as licensee) and ASP Isotopes UK Limited (registration number 14252657) (as licensor), dated 26 July 2022, shall be-reinstated and shall continue in force on the same terms and conditions as set out in such agreement.

9 Appropriation of proceeds

The Pledgee shall appropriate all amounts received pursuant to the collection, sale or other realisation of the Pledged Assets and/or Ceded Rights (or any of them) towards the repayment of amounts due and payable under the Secured Obligations, and to defray all costs and expenses incurred in or arising out of the exercise of its rights under and in terms of this Agreement, the Acknowledgement of Debt Agreement and/or the Principal Agreement, provided that the Pledgor shall remain liable for any shortfall in respect of such amounts.

10 Authority

If at any time during this Agreement the Pledgee becomes entitled to exercise its rights under clause 8 (*Realisation*), the Pledgor hereby authorises and appoints the Pledgee irrevocably and *in rem suam* as the Pledgor's attorney and agent in the Pledgor's name, place and stead to sign and execute:

10.1 any proxy in favour of the Pledgee or its nominees to enable the Pledgee or such nominee, as the case may be, to exercise any voting rights attaching to the Pledged Assets or any of them; and

10.2 such documents as may be necessary:

(a) in order to render the Pledged Assets and/or the Ceded Rights or any of them negotiable including, without limitation, the signature of transfer declarations;

(b) to enable the Pledgee to receive payment of the purchase price of the Pledged Assets and/or the Ceded Rights; and

(c) to enable the Pledgee to exercise any of its rights granted to it herein.

11 Duration

11.1 The Pledge and Cession in terms of this Agreement shall commence on the Signature Date and continue and endure in accordance with the provisions of this Agreement until the Discharge Date. In particular, this Agreement shall not terminate by reason solely of the fact that there may at any time be reduced obligations or debts owing by the Pledgor under the Acknowledgement of Debt Agreement or the Principal Agreement.

11.2 The Pledgee shall no later than 5 (five) Business days of receipt of written request from the Pledgor, certify in writing to the Pledgor that the Discharge Date has occurred (provided that the Discharge Date has in fact occurred).

12 Additional rights

12.1 The rights conferred on the Pledgee by this Agreement are additional to and not in substitution for:

(a) any other rights the Pledgee has, or may at any time in the future have, against the Pledgor or any other person; and

(b) any other security held or hereafter to be held by the Pledgee from the Pledgor, or any other person, in connection with the Secured Obligations.

12.2 The Pledgee may release any security held by it without prejudice to its rights under this Agreement.

13 Pledgor bound notwithstanding certain circumstances

13.1 The obligations of the Pledgor under and in terms of this Agreement are irrevocable and shall operate as continuing covering security for all the Secured Obligations and shall continue to be of full force and effect until the Discharge Date notwithstanding:

(a) any intermediate discharge or settlement of, or fluctuation in, the Secured Obligations, in which event the Pledge and Cession contained in this Agreement shall operate as security for any indebtedness subsequently arising in favour of the Pledgee pursuant to the Acknowledgement of Debt Agreement and the Principal Agreement;

(b) the Pledgor's legal disability and/or any variation or amendment of, addition to or deletion from or cancellation or termination of any agreement or of any of the rights of the Pledgee against the Pledgor;

(c) any incapacity or lack of power, authority or legal personality of or dissolution of or change in the members or status of the Pledgor or any other person;

(d) any suspension, unenforceability, illegality or invalidity of any obligation of any person under this Agreement, the Acknowledgement of Debt Agreement or the Principal Agreement;

(e) any latitude, indulgence, waiver, consentor extension of time which may be allowed or shown by the Pledgee to the Pledgor or any other person;

(f) the Pledgee not exercising any one or more of its rights under the Acknowledgement of Debt Agreement or the Principal Agreement, either timeously or at all;

(g) the receipt by the Pledgee of any dividend or benefit in any insolvency, liquidation or business rescue proceedings or any compromise or composition whether in terms of any statutory enforcement or the common law;

(h) the release by the Pledgee of the Pledgor from some but not all of the Secured Obligations;

(i) any insolvency, administration, business rescue, reorganisation, arrangement, readjustment of debt, dissolution, liquidation or similar proceedings have been instituted by or against the Pledgee or any other person;

(j) the taking, variation, compromise, exchange, renewal or release of, or refusal or neglect to perfect, execute, take up or enforce, any rights against, or security interest over the assets of, any person or any non-presentation or non-observance of any formality or other requirement in respect of any instrument or any failure to realise the full value of any Security;

(k) the Acknowledgement of Debt Agreement or Principal Agreement not being executed by or binding against the Pledgor or any other party;

(l) any amendment, novation, supplement, extension, restatement (however fundamental and whether or not more onerous) of the Acknowledgement of Debt Agreement, the Principal Agreement or any other document or security including, without limitation, any change in the purpose ofsuch agreements; and/or

(m) any other fact or circumstance that may arise (including any act or omission by the Pledgee) on which the Pledgor might otherwise be able to rely on a defence based on prejudice, waiver or estoppel.

13.2 If the Pledgor suffers any loss arising from any of the facts, circumstances, acts or omissions referred to above, the Pledgor will have no claim against the Pledgee in respect thereof.

14 Exemption from liability

The Pledgor hereby:

14.1 agrees that the Pledgee shall not be responsible for any loss from the sale or realisation of the Pledged Assets and/or Ceded Rights and/or any of them, howsoever arising, or for any reduction in the value of the Pledged Assets and/or Ceded Rights and/or any of them, unless such loss or reduction in value is occasionedsolely and directlyby the wilful default and/or gross negligence of thePledgee;

14.2 absolves thePledgeefrom all liability whatsoever shouldtheyfail to collect any benefits (however named or described, without any exception) arising from or by virtue of the Pledged Assets and/or Ceded Rights and/or any of them, or should they fail to take up any rights issued or granted in relation to the Pledged Assets and/or Ceded Rights and/or any of them, or in any way fail or omit to protect their own or any of the Pledgor's interests relating to the Pledged Assets and/or Ceded Rights and/or any of them; and

14.3 absolves and indemnifies the Pledgee and its directors, officers, employees, representatives and advisers from and against any loss or damage, whether direct or indirect, consequential or otherwise, suffered by the Pledgor arising from any cause in connection with this Agreement, whether the loss or damage results from contract, delict, negligence or any other cause and whether this Agreement has been terminated or not, save for any loss or damages arising as a result of the gross negligence or wilful misconduct of the Pledgee.

15 Certificate of indebtedness

A certificate signed by any director or manager of the Pledgee (whose appointment need not be proved) as to the existence of and the amount of indebtedness by the Pledgor to the Pledgee under this Agreement shall in the absence of manifest error, be prima facie evidence of the matters to which it relates.

16 Renunciation of benefits

The Pledgor hereby renounces the legal benefits and exceptions of excussion, division,*non numeratae pecuniae, non causa debiti,* revision of accounts and *errore calculi,* the Pledgor declaring itself to be fully acquainted with the full meaning and effect of this renunciation.

17 Cession, assignment and delegation

17.1 The Pledgor shall not be entitled to cede any of its rights or delegate any of its obligations under this Agreement to another person without the prior written consent of the Pledgee.

17.2 To the extent that any cession and/or delegation contemplated in this clause 17 gives rise to a splitting of claims against the Pledgor, the Pledgor hereby consents to such splitting of claims.

17.3 The Pledgee shall be entitled to cede and/or delegate its rights and/or obligations under this Agreement, and the Parties each hereby irrevocably and unconditionally consent to any splitting of rights or claims which may arise from such a cession and transfer.

18 Remedies cumulative

18.1 The rights of the Pledgee under this Agreement:

(a) may be exercised as often as necessary;

(b) are cumulative and not exclusive of its rights under general law, and

(c) may be waived only in writing and specifically.

18.2 Any delay in exercising or non-exercise of any such rights is not a waiver of those rights.

19 Non-circumvention

The Pledgor hereby irrevocably and unconditionally undertakes in favour of the Pledgee that it will not circumvent, avoid or bypass or obviate the terms and conditions contained in this Agreement, or attempt to do so for any purpose whatsoever.

20 Splitting of claims

The Pledgor irrevocably consents to any splitting of claims that may arise out of this Agreement and to any harm, prejudice or damage that it may suffer as a result of any such splitting.

21 Further Assurances

The Pledgor shall generally promptly do everything that may be required in order to comply with its obligations under this Agreement and as may otherwise be required by the Pledgee, for the purposes of and to give effect to this Agreement, failing which the Pledgee may, to the extent possible, attend thereto on behalf of the Pledgor and recover on demand from the Pledgor any expenses incurred in relation thereto. In particular the Pledgor shall execute and do all such acts and things as the Pledgee, in its discretion, may require:

(a) to perfect or protect the security interests created (or intended to be created) by this Agreement;

(b) to preserve or protect any of the rights of the Pledgee under this Agreement;

(c) to enforce any security interests created under this Agreement on or at any time after it becomes enforceable;

(d) for the exercise of any power, authority or discretion vested in the Pledgee under this Agreement; and

(e) to carry out the effect, intent and purpose of this Agreement,

in any such case, forthwith upon demand by the Pledgee and at the expense of the Pledgor.

22 Notices

22.1 **Notices**

22.2 Each Party chooses the addresses set out in clause 9 *(Notices)* of the Acknowledgement of Debt Agreement, and for the purposes of giving or sending any notice provided for or required under this Agreement, the said physical addresses as well as the email addresses contained therein.

22.3 The provisions of clause 9 *(Notices)* of the Acknowledgement of Debt Agreement are incorporated by reference herein, *mutatis mutandis*, as if repeated herein in full.

23 General

23.1 Applicable law

This Agreement is to be governed, interpreted and implemented in accordance with the laws of South Africa.

23.2 **No representations or implied terms**

(a) It is recorded and agreed that there are no conditions precedent suspending the operation of this Agreement and no warranties, promises, representations or inducements of whatsoever nature have been made or given to the Pledgor to induce it to sign this Agreement and bind itself in terms thereof.

(b) No Party shall be bound by any express or implied term, representation, warranty, promise or the like, not recorded in this Agreement, the Acknowledgement of Debt Agreement or the Principal Agreement.

23.3 **No indulgences**

No latitude, extension of time or other indulgence which may be given or allowed by any Party to the other Party in respect of the performance of any obligation hereunder, and no delay or forbearance in the enforcement of any right of any Party arising from this Agreement and no single or partial exercise of any right by any Party under this Agreement, shall in any circumstances be construed to be an implied consent or election by such Party or operate as a waiver or a novation of or otherwise affect any of the Party's rights in terms of or arising from this Agreement or estop or preclude any such Party from enforcing at any time and without notice, strict and punctual compliance with each and every provision or term hereof. Failure or delay on the part of any Party in exercising any right, power or privilege under this Agreement will not constitute or be deemed to be a waiver thereof, nor will any single or partial exercise of any right, power or privilege preclude any other or further exercise thereof or the exercise of any other right, power or privilege.

23.4 **Continuing effectiveness of certain provisions**

The expiration or termination of this Agreement shall not affect such of the provisions of this Agreement as expressly provide that they will operate after any such expiration or termination or which of necessity must continue to have effect after such expiration or termination, notwithstanding that the clauses themselves do not expressly provide for this.

23.5 **Costs**

(a) The Parties shall each bear their own costs incurred in connection with the negotiation, preparation and implementation of this Agreement.

(b) Any costs, including all legal costs on an attorney and own-client basis and VAT, incurred by a Party arising out of or in connection with a breach by the other Party of this Agreement shall be borne by the Party in breach.

23.6 **Cumulative remedies**

Unless otherwise expressly provided in this Agreement, the rights and remedies under this Agreement are in addition to, and do not exclude, any rights or remedies provided by law.

23.7 **New laws and inability to perform**

If any law comes into operation subsequent to the Signature Date which law affects any aspect or matter or issue contained in this Acknowledgement of Debt, the Parties undertake to enter into negotiations in good faith regarding a variation of this Acknowledgement of Debt in question in order to ensure that neither this Acknowledgement of Debt nor its implementation constitutes a contravention of such law.

23.8 **Independent Advice**

Each of the Parties acknowledges that they have been free to secure independent legal and other professional advice as to the nature and effect of all of the provisions of this Agreement and that they have either taken such independent legal and other advice or dispensed with the necessity of doing so. Further, each of the Parties acknowledges that all of the provisions of this Agreement and the restrictions herein contained are fair and reasonable in all the circumstances and are part of the overall intention of the Parties in connection with this Agreement.

23.9 Waiver of immunity

The Pledgor irrevocably and unconditionally waives any right it may have to claim for itself or any of its assets immunity from suit, execution, attachment or other legal process.

23.10 Provisions severable

Each provision in this Agreement is severable from all others, notwithstanding the manner in which they may be linked together or grouped grammatically, and if in terms of any judgment or order, any provision, phrase, sentence, paragraph or clause is found to be defective or unenforceable for any reason, the remaining provisions, phrases, sentences, paragraphs and clauses shall nevertheless continue to be of full force. In particular, and without limiting the generality of the aforegoing, the Parties acknowledge their intention to continue to be bound by this Agreement notwithstanding that any provision may be found to be unenforceable or void or voidable, in which event the provision concerned shall be severed from the other provisions, each of which shall continue to be of full force.

23.11 Signature

(a) This Agreement is signed by the Parties on the dates and at the places indicated below.

(b) This Agreement may be executed in counterparts, each of which shall be deemed an original, and all of which together shall constitute one and the same Acknowledgement of Debt as at the date of signature of the Party last signing one of the counterparts.

(c) The persons signing this Agreement in a representative capacity warrant their authority to do so.

(d) The Parties record that it is not required for this Agreement to be valid and enforceable that a Party shall initial the pages of this Acknowledgement of Debt and/or have its signature of this Agreement verified by a witness.

23.12 Variation, cancellation and waiver

(a) No addition to or variation, deletion from, or agreed cancellation of all or any clauses or provisions of this Agreement will be of any force or effect unless in writing and signed by the Parties.

(b) No waiver, suspension or postponement by any Party of any right arising out of or in connection with this Agreement shall be of any force or effect unless in writing and signed by such Party. Any such waiver, suspension or postponement will be effective only in the specific instance and for the purpose given.

23.13 **Whole Agreement**

This Agreement, read together with the Acknowledgement of Debt and the Principal Agreement, constitutes the sole record of the agreement between the Parties in regard to the subject matter thereof.

24 Jurisdiction

24.1 The Pledgor hereby irrevocably and unconditionally consents and submits to the non-exclusive jurisdiction of the High Court of South Africa, Gauteng Provincial Division, Pretoria (or any successor to that division) in regard to all matters arising from this Agreement (including a dispute relating to the existence, validity or termination of this Agreement or any non-contractual obligation arising out of or in connection with this Agreement) (Dispute).

24.2 The Pledgor agrees that the High Court of South Africa, Gauteng Provincial Division, Pretoria (or any successor to that division) is the most appropriate and convenient court to settle Disputes and accordingly:

(a) it will not argue to the contrary;

(b) it hereby waives any objection to the jurisdiction of that court on the grounds of venue or *forum non conveniens* or any similar grounds; and

(c) it consents to service of process in any manner permitted by applicable law.

24.3 This clause 24 is for the benefit of the Pledgee only, provided that if the Pledgee institutes action in the High Court of South Africa, Gauteng Provincial Division, Pretoria (or any successor to that division), the Pledgor shall be entitled to raise any counterclaim it may have in such court. As a result, the Pledgee shall not be prevented from taking proceedings relating to a Dispute in any other courts with jurisdiction as it sees fit.

24.4 To the extent allowed by law, the Pledgee may take concurrent proceedings in any number of jurisdictions and the Pledgor shall be entitled to raise any counterclaim it may have in any jurisdiction in which the Pledgee takes any concurrent proceedings.

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Schedule 1 List of corporeal movable assets situated at the Site

OFFICE EQUIPMENT (FURNITURE AND FITTINGS)				
	DEPRECIATION RATE	**20.00%**		
#	**Asset Description**	**Asset Number**	**Location**	**Date**
1	Credenza	KLY/FE/0001	A163	25-Oct-07
2	High back chairs	KLY/FE/0002	A163	08-Jul-99
3	L-Shape oak work desk	KLY/FE/0003	A163	02-Aug-99
4	4 Drawer steel cabinet	KLY/FE/0004	A163	08-Jul-99
5	Meeting chair	KLY/FE/0005	A163	08-Feb-05
6	Meeting chair	KLY/FE/0006	A163	08-Feb-05
1	4 Draw Steel Cabinets	KLY/FE/0010	Stephan	01-Jun-98
2	4 Draw Steel Cabinets	KLY/FE/0011	Stephan	01-Jun-98
3	2 Door steel Stationery Cabinet	KLY/FE/0012	Stephan	19-Jun-02
4	Picture - Irene Farm	KLY/FE/0013	Stephan	05-Dec-06
5	Meeting chairs	KLY/FE/0014	Stephan	25-Oct-07
6	Meeting chairs	KLY/FE/0015	Stephan	25-Oct-07
7	Blinders kantoor A161 (SPS)	KLY/FE/0017	Stephan	15-Jul-08
8	L-Shape oak work desk	KLY/FE/0018	Stephan	08-Jul-99
9	High back Apollo chair	KLY/FE/0019	Stephan	03-Nov-98
10	Conference Table	KLY/FE/0021	Einar	05-Jul-99
11	Conference Chairs	KLY/FE/0022	Einar	05-Jul-99
12	Conference Chairs	KLY/FE/0023	Einar	05-Jul-99
13	Conference Chairs	KLY/FE/0024	Einar	05-Jul-99
14	Conference Chairs	KLY/FE/0025	Einar	05-Jul-99
15	Conference Chairs	KLY/FE/0026	Einar	05-Jul-99
16	Conference Chairs	KLY/FE/0027	Einar	05-Jul-99
17	Conference Chairs	KLY/FE/0028	Einar	05-Jul-99
18	Conference Chairs	KLY/FE/0029	Einar	05-Jul-99
19	Steel Cabinet	KLY/FE/0030	Einar	19-Nov-99
20	Nokia 6300 cellphones	KLY/FE/0031	Einar	15-May-08
21	Conference call sound system	KLY/FE/0032	Einar	19-Sep-08
22	High back chair	KLY/FE/0033	Debbie	01-Jun-98
23	4 Draw Steel Cabinets	KLY/FE/0034	Debbie	03-Jun-98

24	Binding Machine - Ringbind	KLY/FE/0035	Debbie	25-Jan-00
25	Credenza	KLY/FE/0036	Debbie	05-Dec-06
26	Waste paper bin - Wood	KLY/FE/0037	Debbie	05-Dec-06
27	Oak Wall Cupboards	KLY/FE/0038	Debbie	25-Oct-07
28	Kobra Shredder	KLY/FE/0040	Debbie	04-Jul-08
29	Binding Machine - Operetta	KLY/FE/0041	Debbie	10-Sep-08
30	L-Shape Oak work desk	KLY/FE/0042	Debbie	02-Aug-99
31	High back chair	KLY/FE/0045	Le Roux	22-Oct-01
32	Blue Saver arm Chairs	KLY/FE/0046	Le Roux	13-Apr-05
33	Blue Saver arm Chairs	KLY/FE/0047	Le Roux	13-Apr-05
34	Blinders kantoor A159 (LS)	KLY/FE/0049	Le Roux	15-Jul-08
35	Steel cabinet	KLY/FE/0050	Le Roux	18-Nov-08
36	L-Shape oak work desk	KLY/FE/0051	Le Roux	08-Jul-99
37	Royal Blue High back chair	KLY/FE/0052	Callie	22-Jun-07
38	L Shape Oak Desk	KLY/FE/0053	Callie	22-Jun-07
39	4 Drawer Filing Cabinet	KLY/FE/0054	Callie	22-Jun-07
40	Round Table	KLY/FE/0055	Callie	25-Oct-07
41	Light Blue bent oak meeting chairs	KLY/FE/0056	Callie	25-Oct-07
42	Light Blue bent oak meeting chairs	KLY/FE/0057	Callie	25-Oct-07
43	Light Blue bent oak meeting chairs	KLY/FE/0058	Callie	25-Oct-07
44	Light Blue bent oak meeting chairs	KLY/FE/0059	Callie	25-Oct-07
45	Non Magnetic Board	KLY/FE/0060	Callie	13-Dec-07
46	Nokia 6300 cellphones	KLY/FE/0062	Callie	15-May-08
47	Blinders kantoor A156 (CS)	KLY/FE/0063	Callie	15-Jul-08
48	2 Door Stationery Cabinet	KLY/FE/0064	Callie	05-Dec-06
49	High back chair	KLY/FE/0065	Ben	01-Jun-98
50	Steel Desk	KLY/FE/0066	Ben	05-Dec-06
51	Steel Table with wheels	KLY/FE/0067	Ben	25-Oct-07
52	40cm Chrome Fan	KLY/FE/0069	Ben	01-Apr-08
53	4 Drawer steel cabinet	KLY/FE/0070	Ben	28-Aug-08
54	Meeting chair	KLY/FE/0071	Ben	08-Feb-05
55	Meeting chair	KLY/FE/0072	Ben	08-Feb-05
56	Book shelve	KLY/FE/0073	Ben	05-Jul-99
57	Book shelve	KLY/FE/0074	Ben	05-Jul-99
58	Oak Desk, 2 drawer	KLY/FE/0075	Carl	25-Oct-07
59	High back swivvle office chair	KLY/FE/0076	Carl	12-Dec-07

60	High back chair	KLY/FE/0078	Meisie	08-Jan-01
61	2 Door steel Stationery Cabinet	KLY/FE/0079	Meisie	18-Jun-02
62	Picture	KLY/FE/0080	Meisie	05-Dec-06
63	Picture	KLY/FE/0081	Meisie	05-Dec-06
64	Oak Desk, 2 drawer	KLY/FE/0082	Meisie	25-Oct-07
65	Oak Desk, 2 drawer	KLY/FE/0085	Michelle	25-Oct-07
66	High back swivvle office chair	KLY/FE/0086	Michelle	12-Dec-07
67	High back chair	KLY/FE/0088	Elro	01-Feb-01
68	Meeting chair, no arms	KLY/FE/0090	Elro	03-Jun-98
69	Meeting chair, no arms	KLY/FE/0091	Elro	03-Jun-98
70	High back chair	KLY/FE/0092	Kloppies	12-Jul-01
71	4 Draw Steel Cabinet	KLY/FE/0093	Kloppies	21-Feb-02
72	Blue Stack chair	KLY/FE/0095	Charles	01-Jun-98
73	Blue Stack chair	KLY/FE/0096	Charles	01-Jun-98
74	L-Shape oak Desk	KLY/FE/0097	Charles	01-Feb-01
75	High back chair	KLY/FE/0098	Charles	22-Oct-01
76	Desk, Pedestal	KLY/FE/0100	Klaus	19-Dec-05
77	High back chair	KLY/FE/0101	Klaus	19-Dec-05
78	4 Drawer Filing Cabinet	KLY/FE/0102	Klaus	10-Jan-08
79	Steel key holder	KLY/FE/0104	Klaus	22-May-08
80	White Board	KLY/FE/0105	Klaus	05-Dec-06
81	Oak Desk 1.5	KLY/FE/0106	Cornel	21-Apr-05
82	High back chair	KLY/FE/0107	Cornel	05-Dec-06
83	Meeting chair	KLY/FE/0109	A119	08-Feb-05
84	4 Draw Steel Cabinet	KLY/FE/0110	A119	17-Aug-98
85	4 Draw Steel Cabinet	KLY/FE/0111	A119	17-Aug-98
86	2 Door steel Stationery Cabinet	KLY/FE/0112	A119	17-Aug-98
87	Meeting chair	KLY/FE/0113	A119	29-Oct-98
88	Meeting chair	KLY/FE/0114	A119	29-Oct-98
89	Book shelve	KLY/FE/0115	A119	29-Oct-98
90	Oak Desk 1.5	KLY/FE/0116	Kobus	13-Apr-05
91	High back chair	KLY/FE/0117	Kobus	01-Mar-07
92	Meeting chair (Stacker)	KLY/FE/0119	Kobus	08-Jul-99
93	Meeting chair (Stacker)	KLY/FE/0120	Kobus	08-Jul-99
94	Meeting chair (Stacker)	KLY/FE/0121	Kobus	08-Jul-99
95	Meeting chair (Stacker)	KLY/FE/0122	Kobus	08-Jul-99
96	High back chair		Elro	20-Jul-09

97	Wood/Steel work desk		Krappie	29-Oct-98
98	Wooden work Desk		Andre	29-Oct-98
99	Wooden work Desk		Emile	29-Oct-98
100	Security gate at main entrance		1st Floor	15-Jul-08
101	Security gate at management toilet		1st Floor	15-Jul-08
102	2 x Fingerprint readers with power supplies		1st Floor	15-Jul-08
103	2 x Magnetic locks with cables		1st Floor	15-Jul-08
104	Double door steel cabinets		1st Floor	28-Aug-08
105	5 x Smoke detectors		1st Floor	08-Aug-08
106	5 x Alarm passives		1st Floor	08-Aug-08
107	4 x Kocom security cameras		1st Floor	08-Aug-08
108	Waterdispenser - 1st Floor		1st floor - Christo	05-Dec-08
109	Oak Desk 1.2		A106	13-Apr-05
110	Airtech elite Fan		A121	11-Mar-01
111	4 Drawer steel cabinet			
112	40L Engel Fridge with Cover		A2	14-Oct-98
113	Oak Desk, 3 drawer		A2	21-Apr-05
114	3 x Burglar bars - Design Office		A21	11-Aug-08
115	2 x Burglar bars - WF6		A26	15-Jul-08
116	1 x Burglar bars - Mossie		A28	15-Jul-08
117	1 x Burglar bar - Compressor room		A29	11-Aug-08
118	1 x Burglar bar - Magda lab		A31	11-Aug-08
119	Sluitkas		A34	29-Aug-08
120	1 x Burglar bars - Petro		A38	15-Jul-08
121	Oak Desk 1.2		A49	13-Apr-05
122	Oak Desk, 3 drawer		A49	25-Oct-07
123	Small Ivory cupboard on Wheels		A50	05-Dec-06
124	White Board & easel		Adriaan	05-Dec-06
125	5 Tier Bookcase		Adriaan	13-Apr-05
126	Low back swivvle chairs		Adriaan	08-Jun-05
127	Meeting chair		Adriaan	29-Oct-98
128	12 x Blue Saver arm Chairs		Alpha - B/room	21-Apr-05
129	Steel filing cabinets		Alpha - Chemicals	19-Nov-99
130	2 x Blue Saver arm Chairs		Alpha - Control	21-Apr-05
131	Steel Table		Alpha - Control	25-Oct-07

132	Folding metal table		Canteen	-
133	Steel filing cabinets		Alpha - Mainten	19-Nov-99
134	Steel filing cabinets		Alpha - Manager	19-Nov-99
135	Steel Table		Alpha - Sup	25-Oct-07
136	Steel Table		Alpha - Sup	25-Oct-07
137	Steel filing cabinets		Alpha - Sup	19-Nov-99
138	Low back swivvle chair		Alpha - Sup	08-Jun-05
139	Oak barrel shape conference Table		Alpha Plant	25-Oct-07
140	Bambino Desk		Andrew	13-Jul-06
141	High back chair		Andrew	13-Jul-06
142	Oak Desk, 2 drawer		Annelore	25-Oct-07
143	Iconcept IP LAN Desktop phones		Annelore	26-Feb-08
144	High back chair		Bernhard	22-Oct-01
145	Stell work desk, 2 drawer		Bernhard	29-Oct-98
146	2 x Swivel chairs		Bill	08-Jun-05
147	Under counter Fridge		Boardroom	05-Dec-06
148	Boardroom Painting (Agave)		Boardroom	16-Sep-08
149	3 x Boardroom Paintings (Grass)		Boardroom	16-Sep-08
150	Acer Projector		Boardroom	16-Sep-08
151	Boardroom blinds		Boardroom	02-Oct-08
152	2 x Boardroom plants and pots		Boardroom	16-Oct-08
153	Boardroom green vase		Boardroom	16-Oct-08
154	Boardroom Kenya Bowl		Boardroom	16-Oct-08
155	Boardroom 3 drawer server table		Boardroom	16-Oct-08
156	Boardroom Round bowl		Boardroom	21-Oct-08
157	Boardroom electric screen		Boardroom	21-Oct-08
158	Boardroom Ceiling box		Boardroom	21-Oct-08
159	Boardroom Glass whiteboard		Boardroom	21-Oct-08
160	Barrel shape Boardroom Table		Boardroom	22-Oct-08
161	13 x Boardroom high back chairs		Boardroom	22-Oct-08
162	2 x Power brackets		Boardroom	22-Oct-08
163	Boardroom Cladding		Boardroom	22-Oct-08
164	Wooden Desk with 3 Drawer		Boardroom/Store	05-Dec-06
165	Oak coffee table		Boardroom/Store	13-Apr-05
166	Wooden work Desk		Boardroom/Store	29-Oct-98
167	Wooden coffee table		Boardroom/Store	29-Oct-98

168	High back chair		Bradley	01-Mar-07
169	High back chair		Chris	05-Dec-06
170	Meeting chair		Chris	05-Dec-06
171	Guillotine		Chris	05-Dec-06
172	Waste paper bin - Steel		Chris	05-Dec-06
173	Wooden work Desk		Chris	29-Oct-98
174	High back chair		Christo	19-Nov-99
175	L-Shape oak Desk		Christo	08-Jan-01
176	H/B Blue saver chair		Daleen	18-May-05
177	High back chairs		Daleen	08-Jul-99
178	2 Door steel Stationery Cabinet		Daleen	17-Aug-98
179	High back chair		Etienne	10-Oct-06
180	Formline Desk		Etienne	10-Oct-06
181	Low back swivvle chairs		Etienne	08-Jun-05
182	Oak work desk		Etienne	03-Jun-98
183	Desk		Francois B	31-Jul-02
184	2 Drawer		Francois B	02-Aug-02
185	High back chair		Francois B	25-Apr-07
186	4 Drawer Filing Cabinet		Francois B	10-Jan-08
187	Wooden cabinet		Francois B	29-Oct-98
188	Oak Desk 1.5		Francois de V	13-Apr-05
189	Oak Desk, 3 drawer		Francois de V	25-Oct-07
190	Low back swivvle chairs		Francois de V	08-Jun-05
191	Ivory Table on Wheels		Francois de V	05-Dec-06
192	Meeting chair		Francois de V	08-Feb-05
193	Palisade with double gate		Gas store	15-Jul-08
194	1 x Kocom hidden security cameras		Gr floor	08-Aug-08
195	Lab security gate double		Gr floor	15-Jul-08
196	Double Security door with plate		Gr floor	15-Jul-08
197	2 x Fingerprint readers with power supplies		Gr floor	15-Jul-08
198	2 x Magnetic locks with cables		Gr floor	15-Jul-08
199	3 x Smoke detectors		Gr floor	08-Aug-08
200	5 x Alarm passives		Gr floor	08-Aug-08
201	4 x Kocom security cameras		Gr floor	08-Aug-08
202	Gate in passage at SA coal exit		Gr floor - Eng	11-Aug-08
203	Waterdispenser - Ground		Gr floor - Japie	05-Dec-08

204	Nokia 6300 cellphones		Hendrik S	15-May-08
205	Blue Saver arm Chair		Hendrik S	13-Apr-05
206	2 x Low back swivvle chairs		Hendrik vd M	08-Jun-05
207	Waste paper bin - Steel		Hendrik vd M	05-Dec-06
208	Wooden work Desk		Hendrik vd M	29-Oct-98
209	1 x Blue Saver arm Chairs		Japie	21-Apr-05
210	Meeting chair		Japie	08-Feb-05
211	Meeting chair		Japie	08-Jun-05
212	H/B Blue saver chair		Jenny	21-Apr-05
213	Microwave oven		Kitchen	21-Oct-99
214	Tea Cupboard		Kitchen	05-Dec-06
215	2 x Tearoom tables (Big)		Kitchen	30-Sep-02
216	2 x Tearoom tables (Small)		Kitchen	30-Sep-02
217	15 x Tearoom chairs		Kitchen	30-Sep-02
218	Round meeting Table		Klaus	05-Dec-06
219	Fixed Chairs (X3)		Klaus	05-Dec-06
220	2 x Draughtman chair		Kloppies Lab	15-Sep-08
221	Oak Desk, 3 drawer		Magda	21-Apr-05
222	High back chair		Magda	05-Dec-06
223	Meeting chair		Magda	08-Feb-05
224	Low back swivvle chairs		Magda Lab	16-Nov-01
225	2 x Kocom outdoor security cameras		Outside	08-Aug-08
226	High back chair		Petro	22-Oct-01
227	Non Magnetic Board		Petro	22-Jul-08
228	3 Tier Bookcase		Petro	26-Apr-05
229	Safe		Petro	05-Dec-06
230	3 Drawers pedestal		Petro	13-Apr-05
231	Meeting chair		Petro	08-Feb-05
232	2 Door steel Stationery Cabinet		Petro	17-Aug-98
233	Wooden work Desk		Petro	29-Oct-98
234	Under counter chair		Pieter	08-Jun-05
235	Swivel chair		Pieter	08-Jun-05
236	2 x Meeting chairs		Pieter	29-Oct-98
237	Wooden work Desk		Pieter	29-Oct-98
238	Reception images - Cobbles		Reception	11-Aug-08
239	2 x Reception images - Leaves		Reception	11-Aug-08
240	Reception blinds		Reception	12-Aug-08

241	Reception Glass sign		Reception	15-Aug-08
242	Reception red Pot		Reception	29-Aug-08
243	Reception plant		Reception	29-Aug-08
244	Reception unit		Reception	02-Sep-08
245	Wedge medium back chair, no arms		Reception	02-Sep-08
246	Double seater verde couch		Reception	02-Sep-08
247	Single seater verde couch		Reception	02-Sep-08
248	Coffee Table		Reception	02-Sep-08
249	Corner Table		Reception	02-Sep-08
250	Reception Pigeon hole unit		Reception	22-Oct-08
251	Steel key holder		Reception	22-May-08
252	2 x Extra lighting		Reception	28-Aug-08
253	Oak Desk, 2 drawer		Rob	21-Apr-05
254	High back chair		Rob	05-Dec-06
255	Waste paper bin - Steel		Rob	05-Dec-06
256	4 Drawer steel Filing Cabinet		Serverroom	19-Dec-05
257	Grandstream 4 port SIP Gateway		Serverroom	26-Mar-08
258	PCI - express card 8 lines		Serverroom	05-May-08
259	Alarm control unit (computer)		Serverroom	15-Jul-08
260	4 Drawer steel cabinet		Serverroom	28-Aug-08
261	16 Channel CCTV card		Serverroom	08-Aug-08
262	Server room shelves		Serverroom	02-Dec-08
263	Double door steel cabinets		Vyfster	28-Aug-08
264	1 x Boardroom high back chairs		Willemien	22-Oct-08
265	Kobra Shredder		Willie	04-Jul-08
266	3 x Low back swivvle chairs		Willie	08-Jun-05
267	High back chair		Francois de V	20-Jul-09
268	Waterdispenser - Management			31-Jul-09
269	2 Drawer Oak Desk			03-Sep-09
270	High back chair			07-Sep-09
271	Oak Credenza			02-Oct-09
272	32 x Alu Chairs with no arms		Canteen	19-Nov-09
273	8 x Alu Tables		Canteen	19-Nov-09
274	Siemens 3550 Control Unit			09-Mar-10
275	Siemens Switchboard		Debbie	09-Mar-10
276	Siemens Switchboard		Debbie	09-Mar-10

277	40 x Siemens Handsets			09-Mar-10
278	L-shape grey work desk, 3 drawer	KLY/FE/0123	Kobus	
279	2 Door copboard with adjust shelves	KLY/FE/0124	Kobus	08-Sep-06
280	Bent oak visitors arm chair	KLY/FE/0125	Kobus	13-Sep-06
281	5 Tier bookcase	KLY/FE/0126	Kobus	12-Mar-07
282	High back chair		Annelore	13-Sep-06
283	Oak work desk, 2 drawer		Daleen	
284	Typist chair		Daleen	
285	Bent oak visitors arm chair		Francois de V	13-Sep-06
286	High back leather chair		Hendrik S	
287	4 Drawer filing cabinet		Hendrik S	08-Sep-06
288	2 Door copboard with adjust shelves		Hendrik S	08-Sep-06
289	L-shape Cluster desk, 4 drawer		Hendrik S	12-Mar-07
290	Credenza sliding door		Hendrik S	12-Mar-07
291	L-shape grey work desk, 3 drawer		Japie	
292	High back leather chair		Japie	
293	2 x Stacker meeting chairs		Japie	
294	4 Drawer filing cabinet		Japie	08-Sep-06
295	Round meeting table		Japie	08-Sep-06
296	Bent oak visitors arm chair		Japie	13-Sep-06
297	4 Tier bookcase		Japie	13-Sep-06
298	Oak work desk, 2 drawer		Jenny	
299	L-shape grey work desk, 3 drawer		Malan	
300	High back leather chair		Malan	
301	2 x Stacker meeting chairs		Malan	
302	4 Drawer filing cabinet		Malan	08-Sep-06
303	2 Door copboard with adjust shelves		Malan	08-Sep-06
304	Round meeting table		Malan	08-Sep-06
305	4 Tier bookcase		Malan	13-Sep-06
306	High back leather chair		Willemien	
307	L-shape Cluster desk, 4 drawer		Willemien	12-Mar-07
308	Credenza sliding door		Willemien	12-Mar-07
309	5 Tier bookcase		Willemien	12-Mar-07
310	3GHz Core 2 Duo Workstations			27-Oct-09
311	Benchwork Two Way	Same	Finance	10-Jan-17
312	Global Desk Top	Same	Finance	10-Jan-17
313	Global Mo Ped	Same	Finance	10-Jan-17
314	4 x Operator Chairs		Finance	10-Jan-17

COMPUTER EQUIPMENT				
	DEPRECIATION RATE	**33.33%**		
#	**Asset Description**	**Asset Number**	**Location**	**Date**
1	Benq 19" monitor	KLY/CE/0001	A161/Stephan	25-Apr-08
2	Acer Travelmate notebook & MS Office S/B	KLY/CE/0002	A161/Stephan	25-Mar-09
3	Acer Travelmate notebook & MS Office S/B	KLY/CE/0003	A164/Einar	25-Apr-08
4	HP Colour Laserjet Printer CP1215	KLY/CE/0004	A164/Einar	19-Jan-09
5	BenQ LCD Screen	KLY/CE/0005	A160/Debbie	10-Jan-07
6	Pentium & MS Office S/B	KLY/CE/0006	A160/Debbie	18-Jan-07
7	BenQ Multifunction CM3000	KLY/CE/0007	A160/Debbie	-
8	HP 1000 Laserjet Printer	KLY/CE/0008	A159/Le Roux	24-Oct-01
9	Acer Travelmate notebook & MS Office S/B	KLY/CE/0009	A159/Le Roux	27-Jun-08
10	Benq 19" monitor	KLY/CE/0010	A159/Le Roux	27-Jun-08
11	Dell Desktop PC	KLY/CE/0011	A19	06-Jul-06
12	HP Laserjet Printer P1005	KLY/CE/0012	A133/Cornel	26-Sep-08
13	Black Tower PC	KLY/CE/0013	A38/Bernhard	28-Dec-07
14	Benq 19" monitor	KLY/CE/0014	A35/TOF	02-Dec-08
15	Benq 19" monitor	KLY/CE/0015	A121/Michelle	03-Dec-08
16	Intel pentium computer & MS Office S/B	KLY/CE/0016	A147/Ben	03-Dec-08
17	Benq 19" monitor	KLY/CE/0017	A121/Meisie	03-Dec-08
18	Intel pentium computer	KLY/CE/0018	A114/Serverroom	03-Dec-08
19	LG Notebook	KLY/CE/0020	A35/Hendrik K	08-Dec-04
20	Acer Travelmate notebook	KLY/CE/0021	A114/Serverroom	25-Aug-08
21	Beidge Tower PC & MS Office S/B	KLY/CE/0023	A38/Petro	22-Jun-07
22	Black 17" CRT Monitor	KLY/CE/0024	A114/Serverroom	03-Jan-08
23	Beidge Tower PC	KLY/CE/0025	A133/Cornel	17-Jan-01
24	Seagate 1TB Hard Drive	KLY/CE/0026	A133/Cornel	25-Mar-09

25	LG Pentium Notebook	KLY/CE/0027	A114/Serverroom	12-May-05
26	HP Colour Laserjet Printer 2700	KLY/CE/0028	A114/Serverroom	15-Oct-07
27	Computer for voice over IP PABX	KLY/CE/0029	A114/Serverroom	25-Feb-08
28	Rack Mountable Server - Domain	KLY/CE/0030	A114/Serverroom	28-Mar-08
29	File Server	KLY/CE/0031	A114/Serverroom	09-Apr-08
30	Server Cabinet	KLY/CE/0032	A114/Serverroom	10-Apr-08
31	UPS for server	KLY/CE/0033	A114/Serverroom	23-Apr-08
32	48-port Stackable smart switch	KLY/CE/0034	A114/Serverroom	30-May-08
33	ADSL modem	KLY/CE/0035	A114/Serverroom	16-Oct-08
34	ADSL modem	KLY/CE/0036	A114/Serverroom	16-Oct-08
35	Seagate Freeagent external hard drive	KLY/CE/0037	A114/Serverroom	04-Nov-08
36	Seagate Freeagent external hard drive	KLY/CE/0038	A114/Serverroom	04-Nov-08
37	Seagate Freeagent external hard drive	KLY/CE/0039	Safe Room	04-Nov-08
38	Seagate Freeagent external hard drive	KLY/CE/0040	Safe Room	04-Nov-08
39	HP Colour Laserjet Printer CP1515n	KLY/CE/0041	A26/Willlie/Brad	09-Dec-08
1	Pentium III PC		A114/Serverroom	17-Jan-01
2	HP Laserjet 5550 printer		A114/Serverroom	05-May-98
3	HP Laserjet 3 in 1 printer		A114/Serverroom	06-Jun-08
4	Benq 19" monitor		A35/Annelore	25-Apr-08
5	Acer Travelmate notebook & MS office		A35/Annelore	28-Nov-08
6	Black Tower PC		A38/Bernhard	22-Jun-07
7	Fujitsu Siemens Laptop & MS Office S/B		A28/Bill	27-Mar-08
8	48-port Stackable smart switch		Boardroom	30-May-08
9	Pentium & MS Windows XP		A26/Bradley	22-Jun-07
10	Benq 19" monitor		A26/Willie	28-Aug-08
11	MS Office small business		Carl	05-Dec-08
12	HP Designjet 1220C		A19	14-Oct-98
13	HP Tower PC & MS XP Professional		A19	29-Apr-08
14	Mecer Travel Notebook		A114/Serverroom	05-May-05
15	Pentium		A114/Serverroom	28-Jul-06
16	Acer Travelmate notebook & MS office		A40/Francois de V	16-Oct-08
17	Benq 20" monitor		A40/Francois de V	27-Nov-08

18	Compressor analyse computer		A40/Francois de V	27-Nov-08
19	Acer Travelmate notebook		A47/Hendrik S	25-Apr-08
20	Benq 22" monitor		A47/Hendrik S	05-Nov-08
21	Acer Travelmate notebook & MS office		A46/Japie	06-Jun-08
22	LG Pentium Notebook		Bradley Huis	28-Jun-02
1	Benq 18.5" LCD monitor		A147/Ben	10-Dec-08
1	Mecer Notebook		A144/Rob	15-Jul-02
2	HP Colour Laserjet Printer 1600		A114/Serverroom	21-Aug-06
3	Astaro 220 Unit Upgrade		A114/Serverroom	12-May-09
4	BenQ 24" LCD Monitor		NECSA/Christo	12-May-09
5	Seagate External free agent 1.5TB		Vyfster	18-May-09
6	Seagate External free agent 1.5TB		Vyfster	18-May-09
7	Seagate Barracuda 7200.11		Vyfster	18-May-09
8	Seagate Barracuda 7200.11		Vyfster	18-May-09
9	Kingston 2GB 400MHz DDR		Vyfster	18-May-09
10	Intel NICS Desktop Single Pack Adaptor		Vyfster	18-May-09
11	ProSafe 24 Port Smart Gigabit Switch		Vyfster	18-May-09
12	Eaton Ellipse ASR 1000 USBS IEC		Vyfster	18-May-09
13	Precision T3500		A40/Francois de V	26-May-09
14	BenQ 18.5" LCD Monitor		A26/Willlie/Brad	02-Jun-09
15	Silver GigaByte Tower PC		A38/Bernhard	07-Jul-09
16	Pentium Computer		A35	20-Jun-05
17	Pentium Computer		A133/Cornel	27-Feb-06
18	Pentium Computer		A35	27-Feb-06
19	Black Tower PC		A28/Bill	
20	Silver GigaByte Tower PC		A133/Cornel	01-Mar-07
21	Benq 19" monitor		A28/Bill	06-Mar-07
22	Silver GigaByte Tower PC		A121/Meisie	
23	Computer		Boor	12-Jun-07
24	ViewSonic 17" Wide LCD Monitor		A28	10-Jun-05
25	Core Computer & 19" Monitor		A35/GC Analytical	08-Sep-06
26	LG Notebook		A127/Klaus	27-Jan-05

27	Silver GigaByte Tower PC		A121/Michelle	01-Mar-07
28	Benq 19" monitor		A38/Bernhard	06-Mar-07
29	Notebook	KLY/CE/0042	Kobus	16-Mar-06
30	Beidge Tower PC & MS Office S/B		A143/Adel	01-Mar-07
31	Pentium Computer		A114/Serverroom	12-Jun-05
32	Computer		A114/Serverroom	12-Jun-07
33	Computer		A28/Petro	01-Mar-07
34	17" LCD Monitor		A28/Petro	07-Mar-07
35	Computer		Pieter	12-Jun-07
36	Mercer Notebook		A114/Serverroom	07-Mar-07
37	Pentium Computer		Willemien	29-Jul-05
38	19" Screen		Lourens	01-Apr-08
39	4-Bay GigaBit Desktop Network			02-Sep-11
40	PC Box		Analytical Lab	02-Feb-12
106	WIRELESS MOBILE 4000		Lab	28-Sep-12
107	WIRELESS MOBILE 4000		Lab	28-Sep-12
108	Acer Notebook		Bernard	28-Feb-13
109	Samsung 23" LED 1920x1080 MEG		Carl Ronander	28-Feb-13
110	G500 15.6" I% 2.604GB 1.00TB DVD	KLY/CE/0043	Kim Strydom	06-Dec-13
111	EnGenius EA P300 Ceiling AP, 300MPBS	KLY/CE/0044		03-May-13
112	L IPS 23.0" 1920x1080 MEG	KLY/CE/0045		
113		KLY/CE/0046		19-Feb-16
114	Mecer PC Kim and Arlene	KLY/CE/0047		19-Feb-16
115		KLY/CE/0048		03-Mar-16
116	Lenova E5180	KLY/CE/0049		30-May-16
117	Mecer 21.5" 16x9 LED Monitos	KLY/CE/0050		09-Jun-16
118	Lenova E5180	KLY/CE/0051		01-Jun-16
119	Microsoft Wireless Mouse	KLY/CE/0052		01-Jun-16
120	Lenova E5180B008OSA	KLY/CE/0053		06-Jun-16
121	Toshiba Satellite C650-14F	KLY/CE/0054		05-Sep-16
122	NX. ACER TMP 259	KLY/CE/0055		09-Jan-17
123	DDR 11 RAM	KLY/CE/0056		02-Feb-17
124	Payroll PC Unit	KLY/CE/0057		01-Feb-17

LABORATORY EQUIPMENT			
	DEPRECIATION RATE	**20.00%**	
#	**Asset Description**	**Asset Number**	**Location**
1	Vacuum Pump	KLY/LE/0001	A126
2	Nd:YAG Laser	KLY/LE/0002	A143
3	Gas Cylinder - Carbon Storage	KLY/LE/0003	A148
4	PC for Infrared Spectrometer (FTIR)	KLY/LE/0004	Ben - WF6
5	Infrared Spectrometer (FTIR)	KLY/LE/0005	Ben - WF6
6	Le Croy Oscilloscope	KLY/LE/0006	Bill - ASP
7	Mass Spectro Meter - CIS 300	KLY/LE/0007	Kloppies - Lab
8	TOF Mass Spectrometer	KLY/LE/0008	Kloppies - Lab
9	SRI GC	KLY/LE/0009	Kloppies - Lab
10	SRS RGA	KLY/LE/0010	Kloppies - Lab
11	Set Gauge Pins in wooden box	KLY/LE/0011	Magda - Lab
12	Set 0.1-0.3 x 0.01 Measuring pins	KLY/LE/0012	Magda - Lab
13	Compressor 191	KLY/LE/0013	Mossie Test Bench
14	JM528 Drill EDM Hole	KLY/LE/0014	Pieter
15	Arc welding machine	KLY/LE/0015	Vyfster
16	Helium Leak Detector	KLY/LE/0016	Vyfster
17	Gas Cylinders - Carbon Storage	KLY/LE/0017	Werner
18	Compressor 590	KLY/LE/0018	WF6 Test Bench
19	Oscilloscope	KLY/LE/0019	WF6 Test Bench
20	Belt Sander	KLY/LE/0020	A126
21	Vacuum Pump	KLY/LE/0021	A126
22	Electron beam Welder	KLY/LE/0022	Xanadu Plot
23	Vacuum Oven	KLY/LE/0023	A126
24	Molectron Head	KLY/LE/0024	Kloppies - Lab
25	Cryogenrator with Bohwin Cryofan	KLY/LE/0025	46
26	WT 2000PVW Manual Loading System Micro PCD	KLY/LE/0026	46
27	Basic Unit MA 10 Tungsten Emission System Zeiss - SEM	KLY/LE/0027	46
28	Two Inch DLI-CVD Reactor MC050 3 x 400V+N (Coater Anneal Systems)	KIY/LE/0028	46

Signature pages

Signed for and on behalf of the behalf of
ASP ISOTOPES SOUTH AFRICA PROPRIETARY LIMITED
by: Signature

Name (block capitals)

Dated

Signed for and on behalf of the behalf of
KLYDON PROPRIETARY LIMITED
by: Signature

Name (block capitals)

Dated

EXHIBIT 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in the Registration Statement of ASP Isotopes Inc. on Form S-8 (No. 333-268421) of our report dated March 31, 2023, on our audits of the consolidated financial statements as of December 31, 2022 and 2021 and for the year ended December 31, 2022 and the period from September 13, 2021 (inception) through December 31, 2021, which report is included in this Annual Report on Form 10-K to be filed on or about March 31, 2023. Our report includes an explanatory paragraph about the existence of substantial doubt concerning the Company's ability to continue as a going concern.

/s/ EisnerAmper LLP

EISNERAMPER LLP
Iselin, New Jersey
March 31, 2023

EXHIBIT 31.1

CERTIFICATION PURSUANT TO
RULES 13a-14(a) AND 15d-14(a) UNDER THE SECURITIES EXCHANGE ACT OF 1934,
AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Paul E. Mann, certify that:

1. I have reviewed this Annual Report on Form 10-K of ASP Isotopes Inc. (the "Registrant");

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the Registrant as of, and for, the periods presented in this report;

4. The Registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(r) and 15d-15(r)) for the Registrant and have:

    a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the Registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

    b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

    c) Evaluated the effectiveness of the Registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

    d) Disclosed in this report any change in the Registrant's internal control over financial reporting that occurred during the Registrant's most recent fiscal quarter (the Registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the Registrant's internal control over financial reporting; and

5. The Registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the Registrant's auditors and the audit committee of the Registrant's board of directors (or persons performing the equivalent functions):

    a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the Registrant's ability to record, process, summarize and report financial information; and

    b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the Registrant's internal control over financial reporting.

Date: March 31, 2023

By: */s/ Paul E Mann*
Paul E. Mann
Chief Executive Officer
(Principal Executive Officer)

EXHIBIT 31.2

CERTIFICATION PURSUANT TO
RULES 13a-14(a) AND 15d-14(a) UNDER THE SECURITIES EXCHANGE ACT OF 1934,
AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Robert Ainscow, certify that:

1. I have reviewed this Annual Report on Form 10-K of ASP Isotopes Inc., (the "Registrant");

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the Registrant as of, and for, the periods presented in this report;

4. The Registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(r) and 15d-15(r)) for the Registrant and have:

    a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the Registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

    b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

    c) Evaluated the effectiveness of the Registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

    d) Disclosed in this report any change in the Registrant's internal control over financial reporting that occurred during the Registrant's most recent fiscal quarter (the Registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the Registrant's internal control over financial reporting; and

5. The Registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the Registrant's auditors and the audit committee of the Registrant's board of directors (or persons performing the equivalent functions):

    a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the Registrant's ability to record, process, summarize and report financial information; and

    b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the Registrant's internal control over financial reporting.

Date: March 31, 2023

By: */s/ Robert Ainscow*
Robert Ainscow
Interim Chief Financial Officer
(Principal Financial and Accounting Officer)

EXHIBIT 32.1

CERTIFICATION PURSUANT TO 18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Annual Report on Form 10-K of ASP Isotopes Inc. (the "Company") for the period ended December 31, 2022, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), the undersigned, Paul E. Mann, Chief Executive Officer, of the Company, hereby certifies, pursuant to requirements set forth in Rule 13a-14(b) of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and 18 U.S.C. Section 1350, that to his knowledge:

(1) the Report fully complies with the requirements of Section 13(a) or 15(d) of the Exchange Act; and

(2) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: March 31, 2023

By: */s/ Paul E. Mann*
Paul E. Mann
Chief Executive Officer
(Principal Executive Officer)

EXHIBIT 32.2

CERTIFICATION PURSUANT TO 18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Annual Report on Form 10-K of ASP Isotopes Inc. (the "Company") for the period ended December 31, 2022 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), the undersigned, Robert Ainscow, Interim Chief Financial Officer of the Company, hereby certifies, pursuant to requirements set forth in Rule 13a-14(b) of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and 18 U.S.C. Section 1350, that to his knowledge:

(1) the Report fully complies with the requirements of Section 13(a) or 15(d) of the Exchange Act; and

(2) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: March 31, 2023

By: */s/ Robert Ainscow*
Robert Ainscow
Interim Chief Financial Officer
(Principal Financial and Accounting Officer)