

ASP Isotopes Inc.
1101 Pennsylvania Avenue NW, Suite 300
Washington, DC 20004

July 1, 2024

VIA EDGAR

Division of Corporation Finance
Office of Industrial Applications and Services
Securities and Exchange Commission
100 F Street, N.E.
Washington, D.C. 20549
Attn: Kristin Lochhead
Li Xiao

Re: ASP Isotopes Inc.
Form 10-K for the Fiscal Year Ended December 31, 2023
File No. 001-41555

Dear Ms. Lochhead and Ms. Xiao:

This letter sets forth the response of ASP Isotopes Inc. (the “Company” or “we,” “us,” “our”) to the comments contained in the letter dated June 28, 2024, from the staff (the “Staff”) of the Securities and Exchange Commission (the “Commission”) regarding the Company’s Annual Report on Form 10-K for the fiscal year ended December 31, 2023 (“Form 10-K”).

To facilitate your review, we have set forth below each of the numbered comments of the Staff’s letter followed by our responses thereto. On the date of submission of this letter, the Company is filing Amendment No. 2 to Form 10-K (“Amendment No. 2”) to address the Staff’s Comment No. 3 from the Staff’s letter as set forth below. Further, we will include the revisions proposed in our response to the Staff’s Comment No. 2 in future filings with the Commission, as applicable, after the Staff’s completion of its review of our responses. All capitalized terms used but not defined in this letter shall have the meaning ascribed to such terms in Form 10-K.

Form 10-K for the Fiscal Year Ended December 31, 2023

Consolidated Financial Statements

Note 11. Acquisitions, page 79

1. *For the acquisition of PET Labs Pharmaceuticals, we see that goodwill arising from the acquisition was attributable mainly to certain existing doctor and service center relationships, which are not identifiable as a separate intangible asset, along with buyer specific synergies expected to arise from the acquisition. Please tell us why the amounts related to existing doctor and service center relationships was not recorded as a separate intangible asset in accordance with ASC 805-20-25-10.*

Response: The Company notes the Staff’s comment and respectfully advises the Staff as follows:

Customers of PET Labs are ultimately the patients that are receiving cancer diagnostic treatments (radioisotopes) ordered by the administering doctor and delivered to the service center (e.g., a hospital) where the patient is being treated. The treatments are bespoke to the patient (i.e., once dispensed for the patient the treatment cannot be used on a different patient) and the treatment is ordered by the administering doctor the night before a patient is scheduled to come in to the service center. The actual treatment is manufactured just prior to delivery due to the extremely short shelf life (less than 6 hours). The patient is ultimately responsible for the payment of services.

Because the patient is the customer, and each patient generally only requires one or perhaps two treatments, there are no contractual customer relationships, however, due to the reputation of PET Labs for timely delivery of product to patients, PET Labs has become a reliable provider for the administering doctors at the local service centers.

There are no patient lists or patient relationships that have any future value due to the nature of the ailments being treated, and there is no backlog due to the extremely short shelf life.

The noncontractual relationship with the administering doctors is not considered a customer relationship, and as a result, management has concluded that these relationships are not identifiable as a separate intangible asset.

2. *We see that ASP Rentals is considered a variable interest entity. Please revise future filings to provide the disclosures required by ASC 810-10-50-2AA through AC, as well as 50-3, including the judgments and assumptions you made in determining that ASP Rentals is a VIE and you are the primary beneficiary. Please also tell us where you considered the disclosure requirements of ASC 810-10-45-25. In your response, please provide us with a copy of your proposed revised disclosure.*

Response: The Company notes the Staff's comment and respectfully advises the Staff that as of December 31, 2023, the status of operations of the Company's VIE, ASP Rentals, was in its very early stage and the only activity recorded that was not eliminated in consolidation was a receivable from ASP Rentals' noncontrolling interest shareholders totaling ZAR 13,203,317 (which at the exchange rate as of December 31, 2023 was \$721,548) and an identical amount classified as equity – noncontrolling interest. Therefore, no assets were netted with liabilities. In addition, as of December 31, 2023, there was only one VIE, and therefore there is no aggregation of multiple VIEs. The Company has concluded that no changes to the Company's disclosure are required or appropriate as a result of the disclosure requirements of ASC 810-10-45-25.

Please see the following example of proposed, revised disclosure, on a marked basis against the disclosure provided in our Form 10-K, that we would provide in future filings to address the disclosure requirements of ASC 810-10-50-2AA through AC, as well as 50-3:

ASP Rentals

In December 2023, ~~the Company~~ ASP South Africa entered into a Shareholders Agreement (“ASP Rentals Shareholders Agreement”) with ASP Rentals, ~~as a newly formed~~ equipment financing service provider formed for the sole purpose of providing financing to ASP South Africa for its significant asset purchases in South Africa. In accordance with the terms of the ASP Rentals Shareholders Agreement, ASP Rentals issued 24% of its capital stock to ASP South Africa for total consideration of ZAR 3,300,829 (which at the exchange rate as of December 31, 2023 was \$180,387) and the remaining 76% of its capital stock was issued to two third party entities for combined consideration of ZAR 13,203,317 (which at the exchange rate as of December 31, 2023 was \$721,548). In addition to issuance of these shares, future ASP South Africa equipment purchases may also be financed by ASP Rentals through the issuance of additional shares. In addition, ASP South Africa will only be entitled to dividend distributions upon the two third party entities receiving a designated return on their investment.

In conjunction with the ASP Rental Shareholders Agreement, ~~the Company~~ ASP South Africa and ASP Rentals entered into an Asset Sale Agreement and an Asset Rental Agreement in order to facilitate the financing of energy equipment recently purchased by ASP South Africa. As a result of the transactions contemplated by these agreements, collectively, ASP Rentals is considered a variable interest entity, and In addition, since the only function of ASP Rentals is to provide financing to ASP South Africa, the Company ASP South Africa is considered to be the primary beneficiary of ASP Rentals, and Therefore, ASP Rentals has been consolidated in accordance with ASC 810.

Pursuant to the terms of the ASP Rentals Shareholders Agreement, as of December 31, 2023 ASP South Africa is obligated to acquire and ASP Rentals is obligated to issue 24% of the common shares of ASP Rentals to be issued and outstanding for total purchase consideration of ZAR 3,300,829 (which at the exchange rate as of December 31, 2023 was \$180,387). As of December 31, 2023 these amounts are eliminated in consolidation.

As of December 31, 2023, ASP Rentals has a receivable and an obligation to issue 76% of the common shares of ASP Rentals with non-affiliates for an aggregate of ZAR 13,203,317 (which at the exchange rate as of December 31, 2023 was \$721,548). As of December 31, 2023, the Company has recorded \$721,548 as a receivable from noncontrolling interest in current assets and a non-controlling interest in equity.

Consideration for all common shares of ASP Rentals was received in January 2024.

In January 2024, a total of ZAR 14,351,431 (which at the exchange rate as of December 31, 2023 was \$784,291) was transferred between ASP Rentals and ASP South Africa per the terms of the ASP Sale Agreement and Asset Rental Agreement, excluding VAT. Therefore, no interest income nor interest expense was recognized for the year ended December 31, 2023.

Item 9A. Controls and Procedures
Management's Annual Report on Internal Controls Over Financial Reporting, page 88

3. ***We see that you concluded your internal controls over financial reporting were effective at December 31, 2023. Please tell us how you arrived at such a determination given your disclosure controls and procedures were not effective due to material weaknesses identified in your internal control over financial reporting. Refer to SEC Release No. 33-8238.***

Response: The Company acknowledges the Staff's comment and respectfully advises the Staff that, on the date of submission of this letter, in order to correct a typographical error, the Company has filed Amendment No.2 to amend and restate Part II, Item 9A (Controls and Procedures) to revise Management's Annual Report on Internal Controls Over Financial Reporting to state that, based on management's evaluation, the Company's internal control over financial reporting was not effective as of the end of the period covered by Form 10-K due to the material weaknesses identified in Form 10-K.

If you have any questions regarding Form 10-K, please contact our Chief Financial Officer, at hkiessling@aspiotopes.com, or our U.S. counsel, Donald Ainscow at Blank Rome LLP, at donald.ainscow@blankrome.com, (972) 850-1474.

Thank you for your time and attention.

Sincerely,

/s/ Paul Mann

Name: Paul Mann

Title: Executive Chairman and Chief Executive
Officer

cc: Heather Kiessling, Chief Financial Officer
Donald Ainscow, Esq., Blank Rome LLP