

September 12, 2022

U.S. Securities and Exchange Commission
Division of Corporation Finance
100 F Street, N.E.
Washington, D.C. 20549

Attention: Ibolya Ignat
Kevin Kuhar
Conlon Danberg
Christopher Edwards

**Re: ASP Isotopes Inc.
Amended Draft Registration Statement on Form S-1
CIK No. 0001921865
Submitted August 12, 2022**

Ladies and Gentlemen:

This letter is submitted on behalf of ASP Isotopes Inc. (the “*Company*”) in response to comments of the staff (the “*Staff*”) of the U.S. Securities and Exchange Commission (the “*Commission*”) with respect to the Company’s Amended Draft Registration Statement on Form S-1 confidentially submitted on August 12, 2022 (the “*Draft Registration Statement*”), as set forth in the Staff’s letter dated August 19, 2022 (the “*Comment Letter*”).

Set forth below are the Company’s responses to the Staff’s comments in the Comment Letter. For reference purposes, the text of the Staff’s comments are reproduced **in bold** below, followed by the Company’s response to the comment. The numbered paragraphs below correspond to the numbered comments in the Comment Letter.

Additionally, the Company is concurrently filing its Registration Statement on Form S-1 (the “*Registration Statement*”), which reflects revisions in response to the Comment Letter and certain other updates.

Amended Draft Registration Statement on Form S-1, submitted on August 12, 2022
Omnibus Klydon License, page 49

1. **Please note whether there are any royalty payments under the terms of the Omnibus Klydon License Agreement and, if so, please note the royalty term and the royalty amount or range.**

Company Response: The Company acknowledges the Staff’s comment and respectfully advises the Staff that it has revised the disclosure on pages 1, 19, 49 and 92 of the Registration Statement.

Indemnification Arrangements with Drs Ronander and Strydom, page 93

2. **We note your revised disclosure that you are “aware of the possibility of a claim by the third party creditor related to this May 2012 agreement” but that “no such claim or litigation has been asserted or threatened” and that you “do not believe any payment obligation under our indemnification arrangements with Dr Ronander and Dr Strydom is currently probable.” Please expand on this disclosure to briefly explain the nature of the potential claim by the third party creditor of which you are aware.**

Company Response: The Company respectfully acknowledges the Staff’s comment and has revised its disclosures on page 93 of the Registration Statement.

8. License Agreements, page F-13

3. **You disclose that in July 2022 your subsidiary, ASP Isotopes UK Ltd has entered into a license agreement, referred to as the Klydon license agreement, to acquire certain intellectual property rights, and explain that this agreement superseded and replaced the Mo-100 license and U-235 license agreements entered into by your other subsidiary, ASP South Africa on September 30, 2021 and on January 25, 2022, respectively. Please disclose your accounting policy for such license terminations and explain how the policy was applied to the termination of your Mo-100 license and U-235 license agreements. Revise your MD&A to clearly disclose the accounting implications of the terminations and any related future impacts, if material.**

Company Response: The Company has expensed the previously paid upfront fee of \$100,000 for the U-235 license and concluded there is no additional accounting required upon termination. The Company does not consider additional policy disclosures regarding terminations of license agreement necessary at this time.

[Remainder of page intentionally blank. Signature page follows.]

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Should the Staff have additional questions or comments regarding this submission, please do not hesitate to contact the undersigned at (858) 677-1470 or donald.ainscow@us.dlapiper.com.

Sincerely,

/s/ Donald G. Ainscow
Donald G. Ainscow
DLA Piper LLP (US)

Enclosures:

cc: Paul Mann, Chairman and Chief Executive Officer

