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UC Comments on Helium Supply Risk (DOI-2022-0012)

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OFFICE OF THE EXECUTIVE VICE PRESIDENT
CHIEF FINANCIAL OFFICER

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1111 Franklin Street, 10th Floor
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March 16, 2023

James D. Applegate
Director, U.S. Geological Survey
ATTN: Helium Supply Risk, MS-102
U.S. Geological Survey
12201 Sunrise Valley Dr.
Reston, VA 20192

RE: UC Comments on Helium Supply Risk (DOI-2022-0012)

I write on behalf of the University of California (UC) system in response to your Request for Comments on Helium Supply Risk. The UC system is comprised of ten research-intensive campuses, six medical schools, and three affiliated U.S. Department of Energy national laboratories. The UC system receives approximately \$7 billion annually of extramural awards to support research conducted throughout all UC locations, with nearly half of the funds supported through federal funding.¹

UC fully endorses the comments submitted by the American Physical Society. In this letter, UC offers further comments on the following questions pertaining to potential disruption in the supply of helium:

- Determining domestic helium consumers and their primary uses for helium.
- Whether such supply disruption would jeopardize manufacturing or use of products vital to the defense, healthcare, aerospace, consumer electronics, and other industries.

Determining domestic helium consumers and their primary uses for helium

Helium is a critical commodity for patient care and federally funded research across the UC system. Its unique ability to remain liquid at ultra-cold temperatures enables scientists to reach temperatures that approach absolute zero. Consequently, the vast majority of scientific equipment and experiments that require reaching these ultra-low temperatures relies on liquid helium.

For example, helium is the only element that can cool the magnets in nuclear magnetic resonance (NMR) and magnetic resonance imaging (MRI) systems because it remains a liquid at -458°F. NMR and MRI instruments cannot be turned off and when they run out of liquid helium, they require expensive repairs or are permanently damaged. At UCSF, the instability of liquid helium supply has imperiled the functionality of these essential systems. These multi-million-dollar instruments support hundreds of researchers, clinical operations, and over 40 federally-funded research grants (DARPA, DOD and NIH) just at UCSF, with many more across the UC system.

¹ University of California Accountability Report 2022:
<https://accountability.universityofcalifornia.edu/2022/chapters/chapter-9.html>

Whether such supply disruption would jeopardize manufacturing or use of products vital to the defense, healthcare, aerospace, consumer electronics, and other industries.

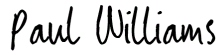
With global helium supply frequently experiencing shortages and supply disruptions, the cost to acquire helium has risen over 400% in the last 5 years. The four shortages over the last 15 years makes it clear that the helium supply is experiencing heightened risk all while the US decreases supply and continues to export this strategic element.

During the global helium shortage of 2019, one UCSF lab had their NMR system run out of helium: it will remain permanently offline due to the cost of repairs and the troubles with procuring liquid helium. Another system, an MEG scanner, is one of only two in California, and provides surgeons with brain maps prior to pediatric brain surgeries. If it runs out of helium it will require multiple weeks to re-cool, delaying surgeries, or, in some circumstances, compel surgeons to operate without detailed brain maps. The MEG scanner has barely averted shut down dozens of times over the past decade.

As the US supply continues to decline, it leaves the research and medical communities at greater risk. By decreasing the US supply capability, we expose our nation to greater disruption and reliance on foreign energy supply. Simply by removing the helium supply, we risk our ability to perform certain clinical imaging critical for patient care and complete federally funded research projects. This ultimately hampers US strategic ability and advancement in the future.

The UC system strongly recommends that reliable and affordable supply of helium be maintained for the research community. We support US policies that strengthen the domestic helium supply and maintain access to a supply of helium for researchers. Such policies would allow continued US global leadership in research and health care. Therefore, we kindly ask that the US government protect and enhance helium production in perpetuity.

Sincerely,

DocuSigned by:

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Paul Williams

Chief Procurement Officer and AVP

University of California