MITA®
MEDICAL IMAGING
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March 16, 2023

David B. Diamond
Deputy Associate Director for Energy and Minerals
The United States Geological Survey
12201 Sunrise Valley Dr.
Reston, VA 20192-0002

Re: Helium Supply Risk Request for Information

Dear Deputy Associate Director Diamond:

As the premier trade association representing the manufacturers of medical imaging equipment, radiopharmaceuticals, contrast media, and focused ultrasound devices, the Medical Imaging & Technology Alliance (MITA) is writing in response to the United States Geological Survey (USGS) request for information (RFI) regarding risks to the supply of helium.

As noted in the RFI, helium is critical for magnetic resonance imaging (MRI) technology. MRI technology plays an essential role in our nation's health care infrastructure, advanced medical research, and the care pathways of diagnosing, staging, evaluating, managing, and effectively treating patients with cancer, orthopedic injuries, heart disease, neurological degeneration, and numerous other medical conditions. Access to these vital medical exams is at risk if helium were to become unavailable at a reasonable cost.

For more than a decade, the domestic and global helium supply chain have suffered shortages due to a variety of unique and challenging issues. This has included privatizing and eventually depleting the national helium reserves, shipping blockades in the Middle East, reduced natural gas consumption in warm winters attributed to global warming, and production equipment failures and maintenance demands of aging production systems. Additionally, there have been significant global increases in demands for helium across multiple growing industries, including space exploration and electronics production, particularly microchip fabrication. This has created challenges for the healthcare system seeking to install new MRI systems and service the existing installed base.

There are over 10,000 MRI systems installed in the United States, each containing, on average, approximately 2,000 liters of liquid helium that must be periodically replenished. Helium is needed throughout the lifecycle of an MRI system, creating the conditions for superconductivity in the strong magnet housed in the device.

Over an MRI system's lifespan, there are instances where the helium may need to be replenished in the device. This may be the result of leakage due to routine use, power failure, regular cooling system maintenance, or the result of the magnet quenching, venting all of the system's helium out of the device. Quenching can occur due to system failure or in the case of an emergency necessitating shutdown of the system. In these cases, all of the helium in the MRI must be replaced.

Unfortunately, replacing the helium in an MRI is not always a viable option given the high costs. Manufacturers, servicers, and healthcare providers are not always able to absorb or pass on the tremendous expense of replenishing a system's helium levels. This means that a device might have to be temporarily or permanently mothballed, denying patients the care they need. This is especially concerning in rural areas where the next nearest MRI system may be a long distance away.

Industry continues to innovate MRI technology to use less helium and to have better systems in place to monitor and maintain helium levels. Some newer MRI systems are designed to use a fraction of the helium as others, but this is still a new technology and limited to lower Tesla systems. Helium availability will continue to be critical for installation of new high field systems and maintenance of the thousands of already installed systems for the foreseeable future.

Given the importance of MRI technology to patient care and advanced medical research, it is critical that helium be available in adequate quantities at a reasonable cost. We cannot be overly reliant on geopolitically sensitive regions to supply an outsize share of our economy's helium. Further, the importance of helium to the medical sector must be recognized. Adequate quantities of helium must be earmarked for purchase for MRI uses.

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If you have any questions, please contact Peter Weems, Senior Director, Policy & Strategic Operations, at 703-841-3238 or by email at pweems@medicalimaging.org.

Sincerely,

Patrick Hope
Executive Director, MITA

MITA is the collective voice of medical imaging equipment and radiopharmaceutical manufacturers, innovators and product developers. It represents companies whose sales comprise more than 90 percent of the global market for medical imaging technology. These technologies include: magnetic resonance imaging (MRI), medical X-Ray equipment, computed tomography (CT) scanners, ultrasound, nuclear imaging, radiopharmaceuticals, and imaging information systems. Advancements in medical imaging are transforming health care through earlier disease detection, less invasive procedures and more effective treatments. The industry is extremely important to American healthcare and noted for its continual drive for innovation, fast-as-possible product introduction cycles, complex technologies, and multifaceted supply chains. Individually and collectively, these attributes result in unique concerns as the industry strives toward the goal of providing patients with the safest, most advanced medical imaging currently available.