

September 26, 2025

To:

Director, Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
Office of Nuclear Material Safety and Safeguards
11555 Rockville Pike
Rockville, Maryland 20852-2738

Subject: Letter of Intent for Licensing Activities Related to Uranium Enrichment Using Atomic Vapor Laser Isotope Separation

Hexium Inc., a U.S.-based company specializing in isotope enrichment technologies, is pleased to submit this Letter of Intent to formally initiate pre-application engagement with the Nuclear Regulatory Commission (NRC) regarding licensing activities associated with our Atomic Vapor Laser Isotope Separation (AVLIS) programs. These activities are being coordinated with the Department of Energy (DOE), National Nuclear Security Administration (NNSA) and Lawrence Livermore National Laboratory (LLNL).

It is our intent to engage with the NRC to obtain a license under 10 CFR Part 70 and all other applicable regulations necessary for the construction, ownership, and operation of a uranium enrichment facility, as well as for the possession, use, and transportation of associated materials. This LOI provides an initial overview of Hexium's planned work and outlines specific areas where we seek NRC guidance to inform and align our planning efforts. An annex is included with follow-up questions for NRC's consideration.

About Hexium

Hexium is a U.S.-based technology company pioneering the modernization of Atomic Vapor Laser Isotope Separation (AVLIS) to strengthen domestic supply chains for critical isotopes. Headquartered in Austin, Texas, Hexium is developing a first-of-a-kind demonstration facility to produce materials such as lithium-6 and lithium-7 that are essential for advanced nuclear power, fusion energy, and medical applications. By advancing a proven enrichment method with modern engineering, Hexium aims to provide a secure, reliable, and scalable source of isotopes that supports U.S. energy security, innovation, and national interests.

Technology Overview

Hexium is advancing Atomic Vapor Laser Isotope Separation (AVLIS), a laser-based enrichment method originally developed in U.S. national laboratories, to enable precise and efficient separation of isotopes. The process works by vaporizing a feed material and using tunable lasers to selectively excite and ionize specific isotopes, which are then separated with electromagnetic fields. Hexium is pursuing this technology for both uranium enrichment, to contribute to the U.S. Department of Energy (DOE) and industry efforts to establish a domestic supply of high-assay low-enriched uranium (HALEU) for advanced reactor deployment, and lithium enrichment, to provide critical lithium-6 and lithium-7 isotopes needed for fusion energy development, advanced fission systems, and medical applications. By leveraging modern laser systems, advanced controls, and improved materials handling, Hexium is modernizing a proven process to deliver a secure, domestic source of strategic isotopes.

National Interest and Policy Alignment

Enriched uranium and lithium are critical to the U.S. because they support advanced nuclear and fusion technologies that are essential for defense, energy security, and global leadership in nonproliferation. These isotopes are also vital to ensuring a reliable domestic supply chain, reducing dependence on foreign sources, and creating high-value economic opportunities through new industrial capacity and job creation. By establishing a secure U.S. capability for uranium and lithium enrichment, Hexium directly supports national policy objectives to enhance energy security, promote technological competitiveness, and reinforce the nation's leadership in advanced nuclear innovation.

Regulatory Engagement

AVLIS is a laser-based enrichment method originally developed at U.S. national laboratories. The process vaporizes feed material and uses tunable lasers to selectively excite and ionize specific isotopes, which are then separated using electromagnetic fields. Hexium is pursuing this technology for:

- **Uranium AVLIS:** We are pursuing technology development in collaboration with LLNL under existing DOE agreements, with the objective of having a pilot facility established by the 2031–2032 timeframe. To support planning we request NRC guidance on sequencing requirements under 10 CFR Part 70, including expected licensing milestones and any pre-application steps that would be appropriate during the ongoing R&D phase.

- Lithium AVLIS: We are conducting laboratory-scale enrichment of lithium isotopes, including concentrations of approximately 15% for commercial fusion applications, and greater than 90% for NNSA uses.

We would like to request an initial meeting with the NRC to introduce our technology, walk through our engagement with DOE, go over timelines for application submission, discuss topics for pre-application review to ensure an efficient review of a future application; Facility Security Clearance (FCL) matters; clarification on the NRC's scope of regulatory authority pertaining to lithium enrichment. We respectfully request a point of contact from the NRC for this engagement and we look forward to working with you.

Hexium is engaging DOE and NNSA in parallel on classification determinations and technology transfer requirements, and to ensure consistent submissions across the agencies. We are in the process of developing our submission for the Fuel Line Pilot Program at DOE to facilitate our license.

We appreciate the NRC's consideration of this request and look forward to beginning a collaborative pre-application engagement.

Sincerely,



Charlie Jarrott
Chief Executive Officer
Hexium Inc.