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March 12, 2018

The Honorable James Richard Perry
Secretary of Energy
United States Department of Energy
1000 Independence Ave. SW
Washington, DC 20585

Dear Secretary Perry,

The President's budget recommendation entails the shuttering of the University of Rochester's (UR) Omega Laser Facility at the Laboratory for Laser Energetics (LLE) over the next three years. Closing this outstanding and unique facility would decimate the field of High-Energy-Density Physics (HEDP). As you are aware, HEDP is the science that plays a critical role at the foundation for maintaining the safety, security, and reliability of our nuclear stockpile without testing; it is also the field that is the magnet for recruiting the best and brightest students and young scientists to the nuclear security field. This is of course the basis of the DOE's Stockpile Stewardship Program (SSP).

There is no other university laboratory like LLE in America (or the world) that has come even close to generating such a cadre of exceptional PhDs to serve the nation's needs: 285 from the UR student population alone, and over 170 from non-UR university students. Furthermore many of these new PhDs go on to work at the major NNSA national labs (Sandia, LLNL, Los Alamos), themselves hosting NNSA laboratories such as the Z Facility at Sandia and the National Ignition Facility at LLNL. The workforce and the senior management of these national labs often derive from students, post-docs and work experience originating from LLE.

Take our own program at the MIT Plasma Science & Fusion Center as one example to demonstrate the impact of LLE upon Stockpile Stewardship, and the recruitment of the best and brightest to HEDP science. Over the past 25 years, nine of our students have received their PhDs by working at LLE, and eight of them went on to the National Labs. Furthermore, two of these graduates received the prestigious and highly coveted American Physical Society Marshall Rosenbluth Outstanding Thesis Award, which

recognizes the best PhD thesis in the plasma science in the entire US. And as I write to you today, MIT has six more graduate students working for their PhDs at LLE, and one of these will also be nominated for the Rosenbluth Outstanding Thesis Award this year. As many of these students, past and present, have taken plasma and fusion classes that I have taught, I can personally attest to their exceptional capabilities.

Another example of LLE's recruitment and training is Dr. Charles Verdon, who heads the LLNL's Weapons Complex Integration (WCI). Well before taking that LLNL position, but after receiving his PhD from the University of Arizona, Dr. Verdon worked nearly two decades at LLE eventually becoming head of the LLE theory Division that led the design of inertial fusion targets. Just recently, as you are no doubt aware, Dr. Verdon has been nominated to be Deputy Administrator for Defense Programs at NNSA. Another example of LLE workforce training and influence would be that of Dr. David Meyerhofer who, for two decades, was the head of the LLE Experimental Program but is now the Physics Division leader at LANL.

Examples such as these, from MIT, and from universities across the country, demonstrate the critical influence LLE has on HED science through the recruitment and training of the best and brightest; and in assuring that a cadre of outstanding and highly-trained scientists can maintain and evaluate that our aging nuclear stockpile is safe, secure, and reliable without testing.

In addition to LLE's indispensable educational and workforce development capabilities, it is essential to note that, of the three methods for achieving laboratory fusion ignition, LLE is the lead laboratory for the direct-drive approach, the other two being indirect drive, spearheaded by LLNL, and magneto-inertial fusion, which is led by Sandia. Having a diverse three-prong approach to achieving laboratory ignition, as enunciated in the NNSA's plan itself, is both prudent and advisable since this problem of ignition is so challenging. Here it is extremely important to also note that both LLNL and SNL extensively utilize the LLE Omega facility to explore their respective approaches to ignition on Z and NIF. The versatility of the Omega laboratory allows for such exploration to occur, something that is in itself unique, remarkable, and a crucial underpinning of SSP. It is also important that LLE is one of the most innovative labs in the world in the field of high-intensity, high-power lasers, and in modern optics; crucial technologies of widespread impact both to ICF and to state-of-the-art innovation in

industry. It is no wonder that the best laboratories (like MIT) in the world send their scientists and engineers to LLE to learn and absorb this cutting-edge technology.

As you are aware, in the recent confirmation hearings of the Under Secretary for Nuclear Security, the Honorable Lisa E. Gordon-Hagerty, she stressed the need to recruit and train the best and brightest workforce needed to maintain and modernize the U. S. nuclear weapons stockpile. Frankly, without LLE as the primary university laboratory in the recruitment and training of the best and the brightest across the nation, as the principal generator of the workforce of highly-trained HED scientists, as the leader in the direct-drive approach to ignition, and as a premier lab in high-power, high-intensity lasers, it is very difficult to see how this can be accomplished. With this critical situation in mind, and for the reasons given, I urge you and NNSA to restore the funding to LLE as well as the entire ICF budget to FY2018 levels.

Thank you for your attention to this matter of vital national importance.

Sincerely,

Dennis Whyte

Cc: The Honorable Lisa E. Gordon-Hagerty, Under Secretary for Nuclear Security
Philip T. Calbos, NNSA
Kathleen Alexander, Ph.D, NNSA
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E. Michael Campbell, Director, LLE
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