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The Honorable Anthony J. Principi, Chairman
Defense Base Realignment and Closure Commission 2521 S. Clark St., Ste. 600
Arlington, VA 22202

Dear Chairman Principi:

I am writing to urge you to reject the Department of Defense's recommendation to relocate the US Army Night Vision Electronic Sensors Directorate (NVESD), referred to as the Night Vision Laboratory in the BRAC report, to the Aberdeen Proving Grounds based on the significant negative impact it will have on a critical military capability - our armed forces' overwhelming superiority in night vision technology. The recommendation is discussed in Volume III (Army) of the DOD BRAC recommendations on pages 9, 60 and 86-89.

I believe that this move could cripple this proven combat force multiplier at a critical time in its development as well as decimate the cadre of experienced scientists and engineers which is the foundation of this technology. It is a move we must not make, especially when our fighting men and women are so dependent on this capability during wartime. The following points make a strong case and convincing case again the move.

The Night Vision Laboratory is the lead DoD laboratory in the development and fielding of night vision technology and equipment. Its value to DoD in providing innovation is well recognized and documented. It has been located at Ft. Belvoir VA since 1956 and now is the home of five hundred scientists, engineers, and support personnel. For fifty years, it has been the source of generations of night vision equipment, each responding to more and more demanding military requirements. The Night Vision Laboratory has added tremendous value to in the field of night vision technology, particularly in the areas of product development and operational use. It has been a crucial factor in providing the surge capability to develop new innovations that keep the industrial base healthy while further enabling the capabilities of the operational force and the industrial base.

A root cause of failure in technology transfer is a lack of understanding of warfighter needs, and the factors limiting the technology. The Night Vision Laboratory has prevented this by providing independent program assessments to the Program Executive Offices (PEOs), bridging technology and culture gaps, as well as defining shared goals

and roles. In performing these roles, the Night Vision Laboratory has had key successes in developing image intensification devices, and forward looking infrared sensors (FLIR). Continuous improvements and advances funded by the Night Vision Laboratory resulted in the U.S. Army procurement (potential of $450 million total) for generation 3 image intensifier devices that are used by navigators and ground forces. The Night Vision Laboratory also developed the family of FLIR common modules that were fielded by the thousands across many platforms and are still produced and used in field operations. The Night Vision Laboratory contributed to the development and insertion of second generation FLIR systems such as those used in the combat-proven Javelin Antitank Weapon system. The above list of successful innovations is a partial list of accomplishments that hopefully communicates the existing capability and the value provided to support the goals of national security and the warfighter.

The above initiatives are past the stages of technology and product development and in procurement. The risks and costs associated with bringing these technologies from the embryonic stage to maturity and to the users have been mostly managed. New higher potential payoff infrared (IR) imaging initiatives are on-going. One that deserves special attention is the planned insertion in field operations of the emerging technology for uncooled IR imaging. This innovation, based on microbolometers arrays build on silicon readout circuits, has the potential for mass production and hence significant cost reductions. Developed by the Night Vision Laboratory and DARPA, this emerging technology is likely to require continuous improvement initiatives to transition from the stages of technology development to product development and full scale manufacturing. The initial units will be used by the PEO soldiers in collaboration with the Night Vision Laboratory and industry to bring this innovation to the user efficiently and effectively. From numerous documented technology transfer experiences for ground or space-based platforms, issues are expected even under the best of conditions and solutions will require knowledge, experience and the know-how in working organizational relationships through the building of cross-functional links and shared goals. The Night Vision Laboratory's expertise, experience and participation are critical, judging from numerous contributions in fielding of I^2, FLIR, laser and countermine systems.

Because of the significant management and research role played by the Night Vision Laboratory, a move to to Aberdeen is almost guaranteed to result in a significant disruption in capabilities and programs. This will occur for systems that are scheduled for imminent deployment as well as for advanced systems that are now emerging from 6.2 and 6.3 Manufacturing Technology phases and scheduled for insertion in the 2008 time-frame. Investments by the Army to insert this technology are substantial. Estimates include: for the next generation Thermal Weapon Sights: $625M to BAE Systems and DRS; for Driver Vision Enhancers for US Army vehicles: $252M, to DRS; and for Enhanced Vision Goggles: $560M to ITT /Raytheon. This latter initiative is a fusion approach that combines I^2 and uncooled thermal sensors, allowing the benefits of both technologies to provide the soldier with enhanced situation awareness.

Much of this work would be significantly disrupted during relocation. However, in the long term, the most damaging aspect of this move would be the effect on the Night Vision Laboratory's workforce. The proposed move is all but certain to lead to significant attrition, and possibly the vanishing altogether of the irreplaceable core of the Night Vision Laboratory - the superior staff of experienced scientists and engineers. Long-standing connections established over the years with outside institutions such as Army Research Laboratory in Adelphi MD, EPIR Technologies in Bolingbrook IL, and University of Illinois at Chicago would be lost. The Night Vision Laboratory works closely with ITT Industries in Roanoke VA to supply the Army with equipment and product development. Also lost would be the expertise and continuity of the staff's role in initiating and managing research and development at US universities and industry, especially in the small business sector. Materials development in this field primarily resides with small companies. EPIR Technologies' and other small companies' potential role as focal points for infrared materials research and development as well as becoming the governments third source (together with the Night Vision Laboratory) to test and evaluate infrared products could be threatened. Notable among the IR device development companies are Rockwell Scientific, Raytheon, BAE Systems and DRS Infrared Technologies. The Night Vision Laboratory played a major role in the development, together with industry, of ENVG (Enhanced Night Vision Goggles) that will soon be field tested by PEO Soldier. The Night Vision Laboratory also played a major role in the development of DBFM (Dual Band Focal Planes) that are essential to target identification and detection.

The attrition of night vision expertise from the Night Vision Laboratory will occur at a time when the pace of investment and technology development by other nations is accelerating. For example, the Shanghai Institute of Technology employs several hundred scientists in the development of the semiconductor material that is at the very heart of high performance infrared detectors. France is currently leading the world in the production of epitaxial chambers for IR semiconductor production and Japan is now the sole source for infrared substrates used in US high performance IR systems. In the meantime, the US night vision industrial base has already declined substantially due to profitability issues. I believe that the strong and uninterrupted leadership of the Night Vision Laboratory is especially needed now to reverse these trends.

The movement of equipment from the lab will also result in lengthy delays in the research and development endeavors of the Night Vision Laboratory due to the need to re-optimize the facilities. The financial cost to do this would be substantial. Because the Night Vision Laboratory is a laboratory and not an office-based operation, a new laboratory must be built at Aberdeen. The cost of the new laboratory facilities is many millions of dollars. These funds represent a net unrecoverable loss to the DoD. And although there might seem to be synergy favoring the co-location of infrared and radio-frequency sensor development, there is actually little fundamental overlap in the

underlying technologies, skills, and expertise involved in these technologies, further reducing any apparent advantage of a Night Vision Laboratory move.

In summary, to maintain the US commitment to infrared technology, it is crucial not to allow the intellectual and financial capital of the Night Vision Laboratory to be lost in a changeover. I believe this move would critically undermine a vital national security capability that has a overwhelming military value. To risk this capability during wartime is a gamble that our nation cannot make. In fact, because of the central role of the Night Vision Laboratory in managing developing and transferring night vision technology, in partnership with the Army PEOs, other services, agencies and the industry, over the last 50 years, it makes more sense for the Night Vision Laboratory to become a Center of Excellence for this technology. The US is at war and the need is to accelerate new innovations that are judged to have the potential for making a huge difference to the warfighter. A loss of productivity in technology transfer of ongoing major production and technology programs would not only cause delays and costs but put at risks our warfighters. I believe the Commission should examine a Center of Excellence option for the current Night Vision Laboratory location in its deliberations.

I strongly recommend leaving the Night Vision Laboratory's physical facility intact at Ft Belvoir and review the possibility of making the Night Vision Laboratory a "Center of Excellence" or Purple Laboratory for night vision/infrared technology.

Thank you for your consideration of my request. .

Sincerely,

Dr. Sivalingam Sivananthan
Director/Microphysics Laboratory
LAS Distinguished Professor
Professor of Physics
Professor of Electrical Engineering and Computer Science