



# News Release

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## Edgewood Chemical Biological and South Korea to Develop New Chemical Detector

*New Detector will provide new level of chemical detection technology*

**ABERDEEN PROVING GROUND, Md.** – Scientists at the U.S. Army Edgewood Chemical Biological Center's (ECBC) Research & Technology Directorate (R&T) were recently awarded funding to redesign an outdated ultraviolet (UV)-based Raman chemical detector, with the goal of developing a more robust, compact product that is compatible with the latest advances in technology. Partnering with ECBC is the Agency for Defense Development (ADD), a national agency for research and development located in South Korea.

The Joint Contaminated Surface Detector (JCSD) was very effective in detecting chemicals on surfaces, and was developed as a possible replacement for the earlier wheel-based system in which a wheel-style detector was placed on the ground outside a moving vehicle to collect samples. Scientists placed the Raman-based JCSD on a reconnaissance vehicle which allowed scientists and soldiers to detect and map out contamination zones. Despite the success of the technology both in the field and in the lab, significant resources would be needed to identify potential solutions to issues with the system. The findings from this testing, completed five years ago, will serve as the foundation for the system's renovation into a new product.

Darren Emge, an electrical engineer with R&T's Laser Spectroscopy Branch under the CB Detection Division, served as the subject matter expert on Raman technology who supported this testing, and said that the team has been waiting for the right opportunity to seek funding to update the system. Thanks to a meeting with the ADD last fall, the time appears to be now.

"When we met with the Korean scientists, they told us they had read about the detector in published journals and were curious to learn more about it," said Emge. "The JCSD has been sitting here for years as we wondered how to best utilize it. The component technology is 10 years old, but the system could still provide a great foundation for a new, more efficient and more effective product. So we began a conversation about a collaborative effort to build a new detector based on the old system, moving to a more modular approach."

That new system, Raman Agent Monitoring System (RAMS), will be a smaller, modular and more rugged detector that they hope will eventually be fielded to the Warfighter. Two JCSD systems will be refurbished so they are fully functional, and one will remain at ECBC for testing and evaluation and one will be sent to the ADD. After a few months, the two teams will discuss how the system can be updated and what they

would each like to add to it, and then divide the work.

“We have a lot of experience building libraries and developing detection algorithms, so we will handle most of that work. The Korean team has already planned out operational field testing. Over the next two years, we will each work on developing these two areas, modularizing the system and filling in the technology gaps,” said Emge.

At the end of the two years, the team plans to conduct an operational demonstration on the Korean Peninsula. Two prototypes will be developed during the RAMS project – one for the U.S. and one for the ADD, allowing both the Americans and the Koreans to have a new, working system. The end goal for the ECBC team is to partner with the Joint Program Manager for Nuclear Biological Chemical Contamination Avoidance to conduct military testing to get RAMS fielded to the soldier.

“Raman technology and UV-based systems have proven to be exceptionally capable of doing on-the-move detection,” said Emge. “It’s pretty incredible to see a moving vehicle come to a complete stop when it detected a chemical on the ground that can’t be seen by the naked eye. This technology works; with the changes we plan to undertake, RAMS will provide a new level of chemical detection.”

The effort will be funded by the Coalition Warfare Project for the first two years, with additional funding from the Joint Program Executive Office for Chemical and Biological Defense during that period. ECBC R&T scientists will work directly with their Korean partners during this period.

For more information about ECBC, visit <http://www.ecbc.army.mil/>.

*ECBC is the Army’s principal research and development center for chemical and biological defense technology, engineering and field operations. ECBC has achieved major technological advances for the warfighter and for our national defense, with a long and distinguished history of providing the Armed Forces with quality systems and outstanding customer service. ECBC is a U.S. Army Research, Development and Engineering Command laboratory located at the Edgewood Area of Aberdeen Proving Ground, Maryland. For more information about the Edgewood Chemical Biological Center, please visit our website at <http://www.ecbc.army.mil> or call (410) 436-7118.*

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