



News Release

For Information: Don Kennedy, 410-436-7118

18 July 2013

ECBC develops low-cost next generation biological detector *TAC-BIO II reduces size, power usage of previous generation*

ABERDEEN PROVING GROUND, Md. – The U.S. Army Edgewood Chemical Biological Center (ECBC) has developed a next generation tactical biological (TAC-BIO II) detector that reduces technology costs, saves production time and uses a power source that is more energy efficient.

The TAC-BIO II detector costs 80 percent less and weighs three times less than its predecessor, which was licensed to General Dynamics Armament and Technical Products in 2009 and to Research International, Inc. in 2010. Since then, ECBC and these organizations have collaborated through a patent licensing agreement, a cooperative research and development agreement and a partnership intermediary agreement. Such technology transfer mechanisms partnered ECBC expertise and facilities with industry technology to further develop the original TAC-BIO prototype into a next generational chemical detector that is weatherproof and uses advanced detection algorithms to reduce false alarms.

With funding from the Defense Threat Reduction Agency (DTRA) and the Defense Advanced Research Projects Agency (DARPA), ECBC was able to produce the TAC-BIO II for just \$2,000. New features include deeper UV light sources developed by DAPRA that allow the detector to identify lower concentrations and smaller aerosol particles. This capability is built from the original TAC-BIO prototype, which used DARPA's revolutionary Semiconductor Ultraviolet Optical Sources (SUVOS) and unique front-end assembly with a novel airflow system to pull air into the detector where a light illuminates, or fluoresces, if an agent is present.

ECBC's state-of-the-art machine shop worked closely with the comprehensive TAC-BIO II team to create new working parts for the detector. ECBC was able to dramatically reduce the overall weight of the product by inserting plastic-coated aluminum mirrors that replaced the heavy metal ones previously used. The lighter parts were produced on an injection molding machine, which heats pellets and granules of plastic into a molten form before injecting it into a mold. Once it is cooled to proper temperatures, the mold opens and ejects the finished part.

"The process is similar to squeezing play dough through the forming shapes when you

were a kid, but much more sophisticated. The molds were made here in our shop and have been shot over 700 times,” said Richard Kreis, an ECBC senior engineering technician.

“What we are able to do here at ECBC is unique. We collaborated closely with our engineering team and fine-tuned these pieces as we went to perfect them. No other Army laboratory has this capability onsite,” he said.

The TAC-BIO II continues to be developed at the Edgewood Area of Aberdeen Proving Ground, Md., where ECBC is located. It is scheduled to be demonstrated in the fall of 2013. As part of the U.S. Army Research, Development and Engineering Command, the Center shares the vision of becoming the premier source of integrated solutions that empower the national defense community and protect the Warfighter against chemical, biological, radiological, nuclear and explosives threats.

“A network of TAC-BIOs could work as an early detection system against a biological attack,” said Aime Goad, ECBC engineer. “The TAC-BIO is so light and affordable that units can be sent into the field for troops to place on vehicles in forward units.”

First responders and hospitals may someday be able to treat a person suffering from an unknown illness in their ambulance or emergency room with the help of a TAC-BIO II detector that could alert emergency personnel to don personnel protective equipment to prevent exposure while treating the patient. The detectors could also be used in school systems to alert students, teachers and faculty to a potential threat and give them enough time to seek a safe place outside of a dangerous environment.

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.

30

Approved for Public Release