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News Release

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ECBC to Deploy New Waste to Energy Technology to Iraq

Aberdeen Proving Ground, MD— Edgewood Chemical Biological Center (ECBC) is scheduled to deploy the Tactical Garbage to Energy Refinery (TGER), a prototype technology which converts waste to energy, to Iraq on 29 April 2008. Victory Base Camp in Baghdad, Iraq was selected as the initial 90-day test site for the two existing models, TGER 1 and TGER 2. The test will provide the project team with a clear understanding of the unit's performance capabilities under extreme conditions.

"At the end of the day, our job is to put cutting-edge technologies into the hands of the warfighters to make their missions and their lives as simple and effective as possible," said ECBC Technical Director Richard Decker. "TGER offers troops an alternate energy resource in a time and place where fuel is scarce," said Mr. Decker. "Because it is fueled by garbage, it also offers troops a proven way to reduce trash overages and therefore enhances security."

How does it work? Various wastes including food slop, plastic, paper and styrofoam are fed into TGER and converted by the hybrid systems using thermochemical and bio-catalytic technologies into either synthetic gas (similar to low-grade propane) or hydrous ethanol, respectively. The ethanol combined with the synthetic gas can be used to power a 60kw generator, however, there are additional options for utilizing the energy. TGER is capable of converting the non-biological materials into fuel pellets, and the biological waste into ethanol that can be stored and burned later. Power from the TGER could be stored in batteries or the technology itself could be literally plugged into the local power grid, a large electrical network that powers basic appliances on demand.

TGER was created through a partnership with Defense Life Sciences, LLC, the visionary and system Lead for TGER, its academic partner Purdue University and the ECBC. Motivated by a study conducted in 2001 by the National Research Council, which identified opportunities in power and energy, ECBC's Scientific Advisor for Biotechnology, Dr. James J. Valdes, responded by writing a Small business Technology Transfer Research Program (STTR) topic on tactical energy.

After receiving proposals in response to this STTR topic, a review committee selected Defense Life Sciences LLC and its partners for an award. The team conducted an exhaustive assessment of technologies with potential to generate energy for tactical scenarios and created the hybrid approach TGER uses. The first prototype, TGER 1, was developed and tested in December 2006 at Purdue University. The project was funded through the STTR program. TGER

2, which includes engineering enhancements from the first model, will be finished in mid-April prior to deployment to Iraq. TGER 2 and the deployment to Iraq are funded by the Rapid Equipping Force, an Army group responsible for distributing technology to the warfighter as quickly as possible.

“It’s rare that a scientist gets to see something that will end up in the field—something that the troops get to touch and use,” said Valdes who oversees the TGER project by managing partnerships, soliciting funding and giving presentations to defense leaders. “It’s been a great pleasure to be engaged in this effort”. As to expectations to the 90-day test, Valdes said, “I think it will be a rousing success and it will be transitioned to a program manager.”

Project team members envision the technology will one day be used in homeland scenarios or to mitigate disasters similar to Hurricane Katrina, when a city’s power grid is down but garbage is readily available. However, TGER could be useful wherever there are high concentrations of people such as at hospitals, schools or camp grounds, explained Valdes, since TGER is able to consume 1,300 to 2,500 pounds of waste a day and can be readily scaled up.

Following a successful deployment and assessment in Iraq, the TGER units will be considered for deployment to Bagram AFB in Afghanistan.

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 US 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 Web site at http://www.ecbc.army.mil or call (410) 436-7118.

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