

The R&T Connection Newsletter

A Monthly Publication for the Research and Technology Directorate

April/May 2008

ANNOUNCEMENTS:

UPCOMING TRAINING:

On 19 May 2008, Security Specialist Jeremy Taylor will attend the beginning of R&T's primary team meeting to provide an overview on how to handle and mark classified documents.

ACCEPTING PROGRAM PROPOSALS FOR SEEDLING INITIATIVE

In an effort to foster innovation and encourage a greater focus on basic research, the R&T Directorate is introducing a Research Seedling Initiative. This initiative will fund "out of the box" ideas and explore new areas in fundamental chemistry and biotechnology, which can later result in 6.1 research efforts. The first iteration of this program is intended to spring board new research initiatives and help prepare primary investigators (Government PIs only) for future basic research calls (FY10). The proposals will be funded for a six month period beginning in June and lasting through December 2008. For more information please email Dr. Way Fountain, Senior Technologist (Chemistry), at augustus.w.fountain@us.army.mil

R&T IN THE NEWS

R&T's Environmental Toxicology Team is featured in the current lead-article on the ECBC IntraNet, regarding Community Outreach initiative ECBC Assists Webelos Cub Scouts in Earning Scientist Belt Loop <https://cbnet.apgea.army.mil/>

R&T's Dr. Harry Salem recently co-edited a book, Chemical Warfare Agents: Chemistry, Pharmacology, Toxicology, and Therapeutics. The book explores the latest methods and products for preventing, diagnosing, and treating the acute and chronic effects of toxic chemical warfare agent (CWA) exposure. <https://cbnet.apgea.army.mil/>

R&T SAFETY TIP REMINDERS

Please remember to wear your safety glasses and lab coat in the laboratory at all times. Also, remember to call the fire department to inform them when working on surety operations past normal duty hours.

Message from the Director



It is my pleasure to present the première issue of the Research and Technology (R&T) newsletter. This bi-monthly publication will keep you informed about the regular developments within R&T as well as external information

that could impact the chemical and biological community here at the Edgewood Chemical Biological Center (ECBC). The newsletter will also feature in-depth information on issues and topics that you request as well as recognize the achievements and pockets of excellence that exist throughout the Directorate.

The newsletter will be just one of many communications efforts that you will notice during this year. In an effort to enhance the

way that information is provided to Directorate employees, I will be refining materials and processes to ensure information is provided to all R&T employees. For example, I recently held a R&T Town Hall Meeting and we are planning an event just for R&T's administrative staff. Engagements like these allow me to share a little about myself as well as share insights about the Directorate and its future.

I greatly appreciate the contributions that each of you make to ECBC on a daily basis and I am always open to any suggestions for improvement that you may have. If you do have input, let me first encourage you to contact your Team Leader or forward them to the R&T Communications Officer at Keisha.Reynolds@us.army.mil. Remember, communication is a two-way street. I will try my best to communicate information to you but it is important that you provide input and feedback so that we can make the Research and Technology Directorate as successful as possible.

ECBC to Deploy New Waste to Energy Technology to Iraq

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.

How does it work? Various wastes including food slop, plastic, paper and Styrofoam are fed into TGER and converted by the hybrid system's 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



The TGER 1 model receives fine-tuning

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Making Connections to Academia



What began as an exploratory discussion on creating synergy between academia and ECBC—ended in a preliminary commitment for Biosciences Senior Team Leader Dr. Evan Skowronski to join University of Maryland's School of Public Health as an adjunct professor—a call he hopes other Research and Technology professionals will answer.

Though the University of Maryland, College Park has offered a Master's in Public Health since 2004, the School of Public Health is in its sophomore year as an accredited school created in 2006. The University System of Maryland Board of Regents approved the school because of what it describes as a 'perceived urgency of the need.' Those needs were examined and have resulted in the schools' carefully selected departments including: Family Science, Kinesiology, Public and Community Health, Epidemiology and Biostatistics, Health Services Administration and the Maryland Institute for Applied Environmental Health. According to Dean Robert S. Gold of the School of Public Health, 'Public health is

what we as a society do collectively to assure the conditions in which people can be healthy...by addressing the behavioral, social, physical, mental and environmental health concerns of communities and populations at risk for disease and injury.'

Skowronski feels ECBC staff could further the school's efforts—forging a well-balanced relationship between the school's capabilities and ECBC's expertise in the application of science. Not to mention, the opportunities such a partnership would create for ECBC to recruit students from the biology and chemistry programs. "I want this to be an engaging experience for the faculty and the students," said Skowronski. "Is it possible that we can pursue joint research efforts like the health of the Chesapeake?" he questioned aloud. "It's satisfying as well to know that we would be contributing to our community, not just defending ourselves against the bad guys. Being able to share my experiences with students will be both personally and professionally rewarding," he added.

The University of Maryland faculty is still interested in filling teaching positions with ECBC staff. "Here's a golden opportunity for ECBC to show off our stuff and get out there in the community. People interested in teaching at one of the premier research institutions in Maryland should come speak to me," said Skowronski.

Dr. Evan Skowronski can be reached at Evan.Skowronski@us.army.mil or by calling 410-436-7218.

ECBC to Deploy New Waste to Energy Technology to Iraq, continued

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 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."

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



(Pictured left to right) Jerry Warner (President, Defense Life Sciences LLC), R&T's Dr. James J. Valdes and Joel Ricklefs (chemical engineer) conduct site surveys for TGER at Victory Base Camp.

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R&T People On the Move



Dr. Augustus Way Fountain III was appointed by the Secretary of the Army as the Senior Research Scientist for Chemistry within the R&T Directorate. In this Senior Technologist position, he is responsible for planning, leading, and conducting cutting-edge research in chemical defense related to the Research and Technology Directorate, ECBC, Department of the Army and Department of Defense missions.

Dr. Fountain was brought to ECBC as part of the Experimental Personnel Program for Scientific and Technical Personnel in 2006 as an eminent expert in electro-optics as it pertained to the chemical and biological standoff detection program. He retired from the Army after 22 years of active duty service that concluded at the U.S. Military Academy, where he was a Professor of Chemistry and served as the Director of the Photonics Research Center. In 2003, he served as the United States Military Academy Fellow to the U.S. Army War College. Dr. Fountain's Army service began in 1985 serving in various capacities related to chemical defense, including active participation in Operations Just Cause with the U.S. Army Rangers in Panama and Desert Shield and Desert Storm in Iraq with the 82nd Airborne Division.

A native of Jacksonville, FL., Dr. Fountain holds a Bachelor of Science in Chemistry from Stetson University, a Ph.D. in Analytical Chemistry from The Florida State University, and an M.S.S. degree in National Strategic Studies from the U.S. Army War College in Carlisle, PA. He resides in Bel Air, MD, with his wife and son.



A recent "come-back kid," **Mr. David Gutierrez** joined R&T as Team Leader for BioSensors, aligned under the BioSciences Senior Leadership Team, but worked in R&T some seven years ago as a Geocenters contractor in the BSL-3 labs.

"It was the work that I did here as ECBC as a contractor that really launched my career and cultivated my applied science foundation," said Gutierrez.

"After experiencing the fast pace

of Washington, D.C. complete with constant out-of-country travel, I wanted to come back to a place instrumental in my development, and to a job that would allow me to explore my passion for science while being able to spend a little more time with my family."

Well-prepared to lead the team of approximately 17 scientists, Gutierrez's experiences made him the right candidate for the job. Prior to recently joining ECBC, Gutierrez was appointed by

U.S. Assistant Secretary as the Deputy Director of the Biological Affairs Office at the Department of State where he developed, coordinated and implemented U.S. policy related to the verification, compliance and enforcement of bilateral, regional and multilateral negotiations in the biological weapons arena. He was responsible for the biological weapons portions of the congressionally-mandated Noncompliance Report and was the liaison with the intelligence community for biological weapons compliance related issues. Gutierrez also served as an intelligence officer at the Defense Intelligence Agency, focusing on foreign biological capabilities. In addition, he did a short stint in the private-sector world working for Battelle to establish their BSL3 laboratories.

Drawing from his career experiences, Gutierrez's plans to, "bring the types of projects to ECBC that would add a different dimension to the center's business—work with a focus on policy and the intelligence community while continuing to support the warfighter," said Gutierrez.

In his free time, Gutierrez enjoys sports and visiting California, which is the home state for him and his wife. Gutierrez also has a great passion for traveling—mentioning Libya as his favorite country to visit because of its breathtaking landscapes. Gutierrez and his wife live in northern Maryland with their two-year old daughter.



Dr. Warren Gardner was recently appointed Team Leader of BioDefense—a team he's called home since coming to ECBC in October 2002 as a contractor. He transitioned to the civilian workforce two years later. During that time, he was a research scientist.

Prior to joining ECBC, Gardner worked for a small company that focused on the sequencing and annotation of bacteria.

He attended the University

of Georgia for his doctorate in Microbiology while his B.S. in biochemistry was earned at Virginia Tech.

Gardner intends to continue work already in progress for the team while growing business through synergetic efforts with other teams. He cites how ad hoc action groups between BioDefense, Aerosol Sciences and BioSensors have already proven successful and he plans to continue implementing similar working groups in the future. "By working together we can see where we can leverage capabilities and we will also have the multiple disciplines required for the successful execution of new programs," said Gardner. "Working together makes us stronger as a center."

During his personal time, Gardner is an avid outdoorsman, often enjoying hiking, snorkeling, and kayaking and simply "getting out on the bay." He also enjoys playing racquetball.