SPECIAL ISSUE HONORING NATIONAL ARMED FORCES MONTH

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May 2011

THE ENGINEERING EDGE

EDGEWOOD CHEMICAL BIOLOGICAL CENTER

ECBC ENGINEERING
Design→Build→Test→Support

ECBC Engineering recognizes National Armed Forces Month in May 2011...

In honor of National Armed Forces Month in May, the *Engineering Edge* has dedicated this month's newsletter issue to recognizing the courage and sacrifices of U.S. military service men and women.

Military Plays Key Role in Stimulating Science and Engineering Advancements

In May 1944, a series of U.S. torpedoes struck, crippled and eventually sank two German U-boats in the dark waters of the mid-Atlantic. They were the first successes of the new torpedo, code-named Fido, a top secret, first-ever, air-launched, anti-submarine, acoustic homing torpedo. Fido arrived at a critical time in World War II, helping to turn the tide in the Allies' favor in the battle for control of the Atlantic sea lanes.

Fido was conceived, developed and manufactured in America. Scientific and technological breakthroughs by scientists occurred in many fields during World War II, involving every branch of service and altering the course of the war. For the first time, success on the field of battle depended on advanced, science-based technologies, making World War II a turning point in the relationship of the military to science. "The civilian National Defense Research Committee saw to it that by the end of the war, prewar disinterest in science was **(Continues on page 6)**

Building Business with Strategy: *A conversation with AJay Thornton, Director of ECBC Engineering*

The Engineering Edge talks with Engineering Director AJay Thornton to understand how the Directorate's strategy has influenced the Directorate and its workforce and how his involvement in the strategic planning process has helped to develop his own professional leadership qualities.

Engineering Edge: Given the recent climate of doing more with less, can you speak to the importance of being a strategic organization?

AJay Thornton: In an era of diminishing available resources, having a forward-leaning strategy allows us to be in a position to dictate where we go, rather than being dragged in any direction because we don't have resources to meet needs. As a strategic organization, we are leaning forward and looking for opportunities to fill the void that has emerged due to a decline in our traditional revenue streams. This kind of proactive strategic approach, while necessary, brings with it several complexities. Sometimes opportunities for work arise, but they are not considered to be in our "traditional lane." This can cause us to bump up against the work of others. **(Continues on page 2)**

Inside This Month's Issue:

This newsletter was published through the Balanced Scorecard.

For article suggestions, questions or comments please contact Ed Bowen at ed.bowen@us.army.mil.

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A U.S. Army RDECOM Laboratory

Building Business with Strategy (AJay Thornton)

(Continued from page 1)

However, we've learned to be successful in those instances as well – anytime we consider taking on work beyond our conventional chemical biological (CB) boundaries, we intentionally socialize the work opportunity with others that do similar work. We then allow them to either lead or partner with us, even if we are the ones that initially identify the opportunity.

The Balanced Scorecard (BSC) strategy has allowed us to identify these types of partnerships, enabling us to leverage preexisting relationships to build business more efficiently. Unlike some organizations, we have been fortunate to maintain a demand for our work. To me, that says we're doing something right because we're not suffering as much as we likely would if we didn't have a satisfied customer base.

EE: Criteria to become an SES is largely centered on strategic thinking, thinking at a higher level. How has being engaged in strategy helped you as a leader? How does it provide valuable experiences for those who aspire to your level? What value do you see in their participation?

AT: I think that most significantly, my involvement in the Directorate's strategic planning effort has helped me to be personally engaged with the workforce and be better in tune with what they are thinking and what their issues or concerns are.

During our Board of Directors meetings and Strategic Management Meetings, I try to impart to the workforce that the strategy is an opportunity to be a part of the organization's future. The BSC is a vehicle for them to bring projects, ideas, priorities and other things that are of **(Continues on page 8)**

Awareness: *Mother's Day, May 8th*

Although Mother's Day became an official national holiday in 1914 when President Woodrow Wilson issued a proclamation following a Congressional resolution, did you know that the origin of Mother's Day dates all the way back to 1868? It was first celebrated as Mother's Friendship Day and was a way to reunite families that had been divided during the Civil War. Following the death of the woman who established this first celebration, Ann Jarvis, her daughter, Anna Marie Jarvis, set out to make it an annual national holiday.

SOME INTERESTING FACTS REGARDING MOTHER'S DAY:

- There are approximately 83 million mothers in the United States
- Americans buy 140 million greeting cards each year for Mother's Day, generating $671 million dollars in revenue for greeting card companies (Mother's Day is the third biggest greeting card holiday in the country, behind Christmas and Valentine's Day)
- Americans spend an average of $14.6 billion on Mother's Day between greeting cards, flowers, gifts, restaurants and other activities
- 96% of Americans participate in Mother's Day
- 48% of people say they are Facebook friends with their mother

HR Tip of the Month: Employment Page

You can no longer obtain the Employment Pages on CPOL. The new link is: www.armycivilianservice.com.

Be sure to bookmark the URL!

For more information about your HR policies, please contact Engineering Workforce Management Representative **Sabre Harper at ext. 5-2722**.

Engineering's TREB Expands Capabilities to Accomplish Testing Breakthroughs

Engineering's Test Reliability & Evaluation Branch (TREB) is expanding their existing capabilities to remain competitive in the Defense market and to continue providing support to the Warfighter. To stay ahead of the growing demands for collective protection (COLPRO) equipment qualification tests, the branch has developed updated test systems in-house. Most recently, TREB has developed tests that evaluate the COLPRO capability of the Medium Mine Protected Vehicle (MMPV) and the Joint Expeditionary Collective Protection (JECP) Family of Systems (FoS). Read more to learn about TREB's testing breakthroughs in recent months.

Joint Expeditionary Collective Protection Family of Systems

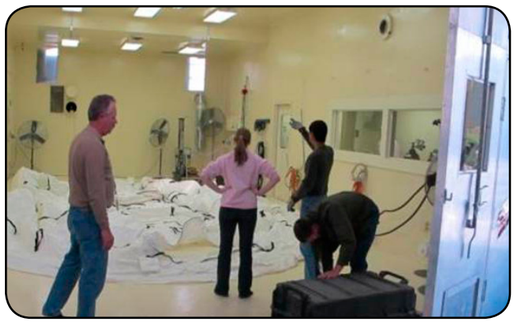
After a marathon of proposal work, grappling with budget constraints and schedule conflicts, Engineering's TREB secured work with Science Applications International Corporation (SAIC) in April 2010.

"It was a test of our team's flexibility and perseverance in many ways," said Do Nguyen, TREB Branch Chief. "We worked hard to get the work with SAIC, and then during the actual testing, we had to be ready when they were ready."

The team is now celebrating the results of their hard work – a thoroughly satisfied customer.

"We really appreciated all the work TREB engineers and technicians put in over the last few months. When delays in prototype manufacturing occurred, TREB was able to accommodate our schedule. When failures occurred, TREB engineers assisted SAIC in troubleshooting and provided excellent insight and analysis of results," said Jim Moratis, SAIC's Program Manager for JECP.

TREB's work for SAIC involved testing five different configurations within the JECP, which include three materiel solutions of tent kits, structure kits and multiple configurations of stand-alone shelter systems. Although the configurations differed from one another in design and purpose, the tests conducted by TREB were similar for each configuration, testing the capabilities of the systems against a simulated chemical agent static vapor challenge.



The JECP FoS is intended to protect Joint Expeditionary Forces (JEF) and their assets through a versatile and transportable COLPRO capability that can be added to common structures and tentage or in the form of a stand-alone COLPRO shelter. The JECP will allow JEF personnel to continue near-normal operations for key functions, such as command and control, medical, and rest and relief, when exposed to a wide range of chemical biological warfare and toxic industrial material hazards.
(Continues on page 7)

Medium Mine Protected Vehicle (Panther)

When TREB began their initial work with the Program Manager-Advanced Mobility Systems [PM-AMS, Tank Automotive Command (TACOM) in Warren, Michigan] to evaluate the COLPRO capability of the MMPV (referred to as Panther), it wasn't clear how they were going to perform the needed evaluations of the multi-purpose vehicle.

In order to conduct the various tests on the Panther, TREB had to start from scratch, figuring out what to test and how to test it.

"The required testing we were asked to conduct was challenging - it was new and we had to follow a tight schedule. Since this testing had never been done before, we had to determine who had the necessary expertise and resources available to assist us with the testing," said Do Nguyen, TREB Branch Chief.

The Panther is a mine-protected, 6x6 wheeled vehicle based on BAE Systems' next generation RG33 family of vehicles. The Panther provides engineering clearance companies, explosive hazards teams and Explosive Ordinance Disposal (EOD) companies with a blast-protected platform to fulfill four missions: route clearance, area clearance, explosive hazards reconnaissance and EOD.

In addition to increased functionality with a new Joint Chemical Agent Detector (JCAD)-Nuclear, Biological and Chemical (NBC) detection system and a NBC COLPRO system, other recent requirements and updated product specifications for the Panther included a new EOD variant.

"Essentially, there are two different variants of the vehicle which we have seen," said Amanda Mihok, TREB Chemical Engineer. "There is the Engineering variant and the EOD variant. We have been responsible for testing each vehicle's NBC overpressure filtration system."

The variants differ in purpose and overall design. The Engineering variant is used to transport Army engineers in a protective fashion to various work sites where they are carrying out specified projects, such as servicing a bridge or building a school. The Panther Engineering variant is designed to transport both military engineers and equipment to those designated work sites.

The EOD variant is tailored to EOD force requirements, including an armored hull shaped to protect crew from mine blasts, an armored bulkhead to protect the crew and a hydraulic ramp for robot operations. The Panther EOD variant is capable of hosting a variety of countermine and electronic countermeasures.

Despite the distinctions between either variant, the NBC overpressure filtration system on each vehicle is the same, with only slight dissimilarities in the systems' airflow. **(Continues on page 6)**

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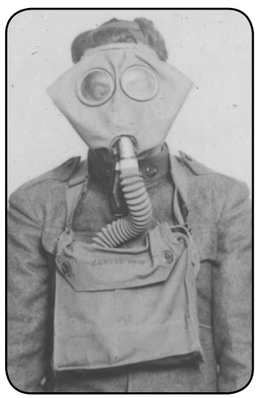
ECBC ENGINEERING RECOGNIZES U.S. Armed Forces Service Members

ECBC ENGINEERING - Supporting the Warfighter for more than 90 years...

1917-1920

The Bureau of Mines established the War Gas Investigations at American University in Washington, D.C. President Woodrow Wilson issued a proclamation that designated Gunpowder Neck, Md., as the site for the first chemical and shell filling plant in the United States. The Bureau of Mines produced the first 25,000 gas masks for Army soldiers during World War I. All chemical warfare functions were centralized at the Edgewood Arsenal, including the Chemical Warfare Services chemical school, research division and gas mask production factory.



1941-1959

ECBC developed the M1 Stationary Oil Smoke Generator for non-mobile smoke access.

ECBC's standardized the M4 Vapor Detector Kit, which could detect faint concentrations of mustard agent using a new reagent that reacted with mustard to produce an intense color change. All the components of the kit were stored in a wooden box.

To resolve problems associated with earlier masks that required a separate canister, the M17 mask was developed for a separate canister by placing filter material in the cheek pockets of the mask.

1968-1989

The Army developed the M8 Portable Automatic Chemical Agent Alarm, the first mass-produced field detector for nerve agents. This was a significant accomplishment in chemical defense and corrected a major deficiency that had made U.S. soldiers vulnerable to a surprise nerve agent attack.

ECBC standardized the M157 Smoke Generator, which provided the Army with its first mobile smoke generation capability.

The Bernard Berger Laboratory Complex was built. This laboratory provides increased capabilities of non-surety defensive development work. It consists of three interconnected-buildings, and each has its own functional purpose in carrying out research, development and engineering for chemical defense.

1996-1998

The M31 Biological Integrated Detection System was standardized, providing the world's first battlefield integrated biological detection capability.

At the direction of Congress, ECBC became the lead agency charged with Domestic Preparedness Program to enhance the capability of federal, state and local emergency responders in incidents involving Weapons of Mass Destruction (WMD). Since 1996, ECBC has trained more than 28,000 first responders in 105 communities across the country and conducted more than 230 WMD exercises.

1999-2004

ECBC began work on the next generation of masks for all the U.S. Services. The XM50 Joint Service General Purpose Mask is a revolutionary advancement in protective mask technology, providing increased soldier, marine, airman or sailor performance.

ECBC technology aids in the U.S. fight against terrorism. Since September 11, 2001, various military and federal departments have called upon technologies developed at ECBC such as protective masks, biological agent detectors and decontaminants, deployed to protect U.S. soldiers and civilians.

2004-present

ECBC designed a new Advanced Chemistry Laboratory, which was completed by 2009. This new laboratory ensures the continuation of ECBC's efforts to counter the evolving threat of chemical warfare and the use of chemical agents by terrorists. This building replaced the Amos Fries Building that was built in 1963.

From 2008 to 2010, ECBC's Detection Engineering Branch supported 77 Chemical Biological Repair Equipment Team missions, aiding U.S. Army units returning from active duty in theater to inspect and repair their chemical, biological, radiological and nuclear equipment.

Beginning in 2010, in an effort to adapt to their customer's needs, ECBC's Rock Island Design Engineering and Test Facility and Edgewood Advanced Design and Manufacturing Division collaborated on a series of programs, establishing a new "East-West" way of doing business. The collaborative work is currently aligned to the Program Manager for Sets, Kits, Outfits and Tools servicing TACOM.

ECBC-Rock Island's Information and Technology Solutions Team (I&TST) continues to provide incentive to Department of Defense customers via their SIPRNet hosting capabilities. At a time when user accountability and custom developments are in need more than ever to provided resistance against security breaches like WikiLeaks and other similar events, Engineering's I&TST has equipped themselves with the needed accreditation to secure their military and federal clients' information technology infrastructures.

JOIN US FOR THE FIRST-EVER ECBC MILITARY APPRECIATION DAY, MAY 16!

On May 16, 2011, the Engineering Directorate will host a "Military Appreciation Day" from 1130-1300 in the Post Theatre (Bldg 4810) sponsored by Engineering's Balanced Scorecard strategy. The event will honor those members of the ECBC workforce who have served, or are currently serving, in the United States military.

The purpose of the event is to foster a culture of communication and appreciation for these members of the workforce and provide a visible reminder of ECBC's mission to support the Warfighter. ECBC Technical Director Joseph Wienand will provide opening remarks and will share from his own experience in the military. The event's agenda also includes brief remarks from senior members of the workforce who have military experience.

Following the event, if you are interested in revisiting some of the dialogue, you can access the full recording of ECBC Military Appreciation Day on ECBC's SharePoint and CBNet from the Engineering Directorate home page beginning May 23.

For more information about Engineering's Military Appreciation Day or to learn how you can get involved in the planning of these types of workforce development events, please reach out to Ed Bowen, ed.bowen@us.army.mil

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Employee Spotlight: *Dean Hansen & Tom Buonaugurio's Love of Military Vehicles*

For this month's installation of Employee Spotlight*, the Engineering Edge spoke with Engineering's Dean Hansen and Tom Buonaugurio about a unique hobby they both share - collecting military vehicles. Read on to find out why they're passionate about these automotive relics and how their group of collectors gives back to the local community.*

The 38th Annual East Coast Military Vehicle Show and Flea Market will take place at Ripken Stadium in Aberdeen on May 12, 13 and 14, and two members of the ECBC Engineering Directorate will be in attendance to display their collections – Dean Hansen and Tom Buonaugurio.

Hansen and Buonaugurio are both members of the Washington Area Collectors/ Blue and Gray Military Vehicle Trust, a local chapter of the national Military Vehicle Preservation Association with approximately 180 members in Maryland, Washington and Virginia and more than 15,000 members nationwide.

"It's basically an old car club, but everybody collects military vehicles," Buonaugurio said.

The primary purpose of the event is to serve the community. Proceeds from the event are donated to the Aberdeen Proving Ground Military Museum, the Wounded Warrior Clinic, United Service Organizations and the Soldiers Sailor Airmen Home. In addition, throughout the year, members of the club donate their vehicles to local and national parades and ceremonies, transport veterans to and from their homes and even showcase their collections in military movies.

"The national organization is also into the history aspect of it to maintain these vehicles. If someone didn't do it you would only see them in a few rare museums," Hansen said.

Both Hansen and Buonaugurio have been involved with collecting military vehicles for about 15 years, although they each started for different reasons.

"I just think the vehicles are really neat vehicles," Hansen said. "The technology is cool and the history that goes along with them is really interesting. I was a military brat so I've been around the vehicles my entire life; to think that you can own one is a thrilling opportunity. I used to love riding them when I was in the military, but the military is cautious and limits the operation of them. When you own a vehicle yourself you can do whatever you want with it."

For Buonaugurio, it was more about the people than the machinery.

"I was into convertibles, regular convertibles like Mustangs and the MG. I bought my first military jeep on a lark," Buonaugurio said. "I enjoyed the people who were involved with collecting military vehicles so much that I got rid of my civilian collection and went completely to the military side. Later, the philanthropic aspect of the sub-culture became an attraction for me. Being able to give back to the community makes me feel good. It started with the vehicle and then it just grew from there."

Hansen currently has just one item in his collection, an almost fully accessorized Unimog.

"My wife won't let me have a motor pool in the driveway," Hansen said jokingly.

(Continues on page 7)

TREB's Panther Testing

(Continued from page 3)

After revisiting the drawing board to determine the best approach for assessing the vehicles' filtration systems, TREB and Aberdeen Test Center (ATC) were able to collectively design several tests that would perform comprehensive evaluations of both vehicles' protection capabilities – static vapor challenge tests, a dynamic vehicle overpressure test, a filtration system simulant leak test, an air flow balance test and JCAD tests.

"With the help of ATC we developed new methods to test the vehicle's protective capability," said Ken Eng, TREB Mechanical Engineer. "The dynamic overpressure test is a prime example. When the vehicle was first delivered to us, there were critical issues with the overpressure filtration system that needed correcting."

Nguyen saw the needed correction as an opportunity to showcase TREB's agility and widespread capabilities in the realm of testing. He subsequently directed his team to work directly with BAE Systems to correct the filtration system at the manufacturer level.

"We were able to help them with the overall testing, but we also helped instigate an overall corrective action plan in the production of all of the MMVP trucks, resulting in a critical change to both variants," Nguyen said.

At the completion of all testing, the PM-AMS was very pleased with TREB's dedication and support in assisting the PM to determine what corrective actions were necessary to implement on all production vehicles.

Military Stimulates Science and Engineering Advancements

(Continued from page 1)

largely reversed," Kathleen Broome Williams, Professor of History at Cogswell Polytechnical College, said in a May 2010 essay. "Military stimulation of science and technology became institutionalized, supported by government funding."

Today, the U.S. Armed Forces rely more than ever on the science and engineering of organizations like ECBC.

"Some of the best examples for advancement come from the field. For me, it was one of those 'ah-ha' moments to find out what the soldier thought of a piece of equipment I'd helped develop," said Lester Strauch, Advanced Design and Manufacturing Deputy Division Chief.

That kind of developer-user interaction is something that Strauch says is key to the continued success of the Directorate's engineering and technological advancements, and subsequently, the ensured safety of the Warfighter on the battlefield.

"I had the opportunity to talk with a soldier who had been using a certain technology Engineering's Advanced Design and Manufacturing had developed. It was the Joint Biological Point Detection System," Strauch said. "The soldier was overjoyed and thought it was the greatest thing in the world." **(Continues on page 8)**

TREB's JECP Testing

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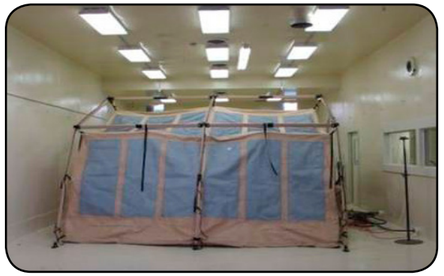
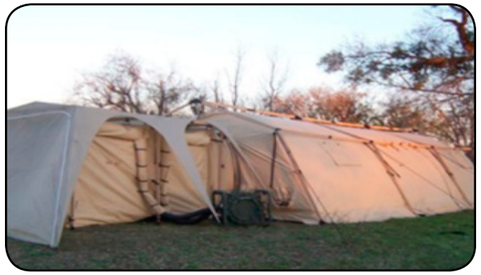


JECP Stand-alone Medium Shelter

The JECP Stand Alone Large and Tent Kits provide a COLPRO capability to the JEF by upgrading several types of existing shelter systems. For this test, the HDT 6-ton COLPRO environmental control unit was used, along with a HDT Fan Filter Assembly (FFA) 400-326 to simulate the Tent Kit 2 configuration. These systems provide the fresh, filtered air to the interior of the shelter. Any leaks within these components could cause a catastrophic failure of the protection system.

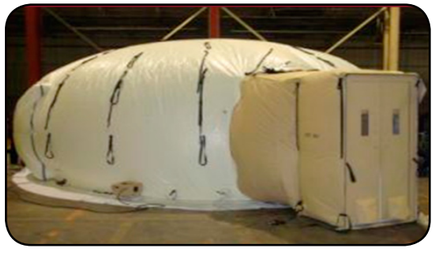
The Structure Kit for improved host structures will utilize existing buildings and other structures of opportunity to provide COLPRO. The Structure Kit Improved can provide protection to any interior room or area. The system will be the first COLPRO shelter to be employed that uses a floorless liner. The patented design of the liner includes a vacuum system to hold the pressurized liner to any contiguous floor. The design allows users to install the liner in any room without removing the furniture. Structure Kits contain an airlock with advanced controls, liner, blower/filtration system and support equipment.



Tent Kit 2

"This system was tested with a single person entrance. The entrance does not require a separate filter unit, instead using the airflow from the toxic-free area for purge purposes," said Ken Eng, TREB Mechanical Engineer.

This system also uses the HDT FFA 400-326 to provide clean air to the Toxic Free Area inside the liner.



Structure Kit Improved

The 12-person Stand Alone Medium, five-person Stand Alone Small, and two-person Stand Alone Man-Portable provide non-powered COLPRO for Warfighter protection for the first time. These COLPRO shelters will afford users protection in austere environments where generators and shore power are not available. These systems incorporate CB filters directly into the shelter, providing clean, breathable air to occupants while passing CO_2 out of the system.

"The unique part of these tests is testing the passive filters," Eng said. "We had to be very meticulous on the handling of these shelters."

The Stand Alone Medium also has the capability to be converted to an overpressure system once the "logistics train" reaches the unit using the system.

"The stand-alone shelters are self-contained, self sustaining, easily and rapidly erected, easily maintained and operated, lightweight, compact and available in various sizes to meet distinct mission and service requirements," Nguyen said.

Currently, TREB is in the contractor qualification test (CQT) phase of the work.

The SAIC team is working on design changes based on the CQT results, and these changes will be incorporated in the systems to be built for the government's Production Qualification Testing, set to begin summer 2011.

"The final test report greatly exceeded our expectations. The TREB team is truly a group of professionals and a pleasure to work with," Moratis said. "We will continue to look for opportunities to use the capabilities of TREB and ECBC in all of our programs."

Military Vehicle Expo

(Continued from page 6)

Buonaugurio has three items: a duck, which is like an amphibious truck; a schwimmwagen, an amphibious World War II vehicle; and a British airborne bicycle. Anyone who attends the event later this month will see much more.

"Visually they'll see 100, maybe 200 military vehicles of all types, from motorcycles up to half-tracks," Buonaugurio said. "Sometimes people trailer in strange things like helicopters, so if you're into militaria, those visual sites are very exciting."

The show also boasts a 15-acre military flea market where attendees can buy anything from packs and bags to insignia, ribbons, uniforms and vehicle parts.

Beyond the collections, the camaraderie between the collectors, the philanthropic spirit and the resilient preservation of the military vehicles is, as Buonaugurio noted, inspiring.

"The military vehicles represent the contributions of our citizens and our solders in defending this country," he said. "The jeeps and trucks won the war for democracy, won the Cold War and are winning the war against terrorism. Many of them are artifacts that would be gone without us; they would probably end up in a scrap heap at a local salvage yard."

For more information about the show, please visit www.militaryvehicleshow.com. For follow-up photos of the event, visit the ECBC social media sites at the end of the month and check out the June issue of the Engineering Edge.

Building Business with Strategy (AJay Thornton) (Continued from page 2)

paramount importance to them forward for consideration and action. The BSC is not just for me, it's for the workforce. It is important for each individual employee to understand first-hand that resources are available to help them pursue their goals and ambitions via the BSC.

With regard to people that aspire to be in leadership positions, when you involve yourself in strategic planning efforts like Engineering's BSC, you begin to develop a sense of career and work-related direction that helps to guide your decisions on a daily and long-term basis. It's like the old adage, "If you don't know where you're going, then any old bus will get you there."

Additionally, involvement in the strategy allows employees at various levels to interact with senior leadership and gain first-hand knowledge about the types of decisions and issues we consider at this level. It provides an opportunity for them to see how we respond to different anomalies and adds to their tool box of experiences and knowledge that will help them in the future.

I came up through the ranks and started as a GS-5. I looked at all of my senior people and could see how some reacted in a reactionary, attack-like manner – they were focused on the tactical. Others were proactive – they led strategically. I learned by observing those different approaches, and that served as good point of departure for me to know what kind of leader I wanted to be.

EE: How do you see the BSC making the Engineering Directorate better day-to-day?

AT: Prior to the BSC, we didn't have an effective means to recognize an individual's contribution to the Directorate's progress. The BSC provided a way to recognize their contribution to the overall strategic process through the "Engineering Directorate BSC Awards Program."

I also think of the various milestones and events that were birthed out of the strategy, resulting from daily strategic work. We had the "Women In Science and Engineering (WISE)" event in March; that was an outstanding event and helped us progress against several strategic initiatives. While these events don't happen on a daily basis, they are visible signs of the BSC efforts. Springboarding from that event, we are exploring ways to leverage other related workforce development events. Most recently, we are working towards a Military Appreciation event in May.

Our strategy provides us with tools and the ability to leverage one another's foresight and skills to adapt to the needs of the Warfighter, integrating our otherwise distinct and unique capabilities into comprehensive Warfighter CB Defense solutions.

-- AJay Thornton, Director of Engineering

EE: How do you see Engineering's Balanced Scorecard serving the Center's larger vision?

AT: Currently, the Center has refocused their strategic efforts to center on four distinct goals. Because the Engineering Directorate has a strategic plan, we can fold our key initiatives into the Center's focus and accommodate those four goals. We can proactively direct and align our existing efforts with that direction. For example, one of the four goals is Leadership Development. Things like the WISE event directly support this goal. That's one of the beauties of our strategic plan – it allows for that flexibility to link our efforts to the Center's four goals. That flexibility is vital to the general success of our organization, as well. The only constant is change, and to remain relevant to our customer base, we must be flexible - not just with internal changes or changes in leadership, but also in our ability to meet the changing requirements of our customers.

EE: How do you see strategy evolving to meet future needs?

The strategy was designed with flexibility in mind. We know that things continually evolve; if we had something etched in stone that didn't lend any kind of flexibility, our strategy would be outdated before we even began to implement it. I see our strategy continuing to evolve to meet the needs of the day.

EE: How does Engineering's strategy connect to the Directorate's mission to support the Warfighter?

AT: I think our strategy fits very well towards that end. It provides us with the ability and the tools to leverage one another's foresight and skills to adapt to the needs of the Warfighter, integrating our otherwise distinct and unique capabilities into comprehensive Warfighter CB Defense solutions. Again, strategy has directed our decisions to make possible this kind of flexibility.

Military Stimulates Science and Engineering Advancements (Continued from page 6)

"It's great to talk to the end-user in the battlefield to find out how what you do at work is benefiting the Warfighter."

Strauch says he is continually amazed by the quality of input given by the soldier in the field.

"What's really unique is that these ideas come from young soldiers who are sometimes just 18 years old. But they are using the equipment everyday and are able to give us specifics on how we can make their job easier and the technology safer," Strauch said.

Additionally, technologies engineered within military organizations like ECBC often take on a second life and are transitioned to the private industry in order to build cheaper models of equipment for the U.S. government.

"Technologies developed under ECBC's roof by our engineers and researchers are continually providing a base for advancements in the private industry," Strauch said.

One example Strauch cited was the development of the tactical biological detector. Teams from ECBC's Research and Technology Directorate teamed up with a group from Engineering to develop a biological unit that uses ultraviolet technology rather than laser technology to detect biological agents.

"Through the development process, there were probably two or three patents for the unit itself. Last year we signed a patent license agreement with two companies who are now in the process of producing these units. It's pretty awesome that a technology developed in-house by ECBC's scientists and engineers could transition so that private industry could build it cheaper for the U.S. military," Strauch said.