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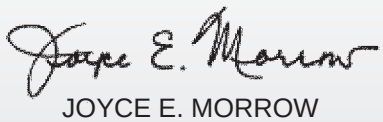

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Front cover: Engineer castle with AVLB. Photo by Mike Curtis

Back cover: U.S. Army photos

DEPARTMENTS

FEATURES

Clear the Way

Brigadier General Peter A. (Duke) DeLuca
Commandant, U.S. Army Engineer School

This time I would like to talk with you about shaping the theater as part of the Army Chief of Staff's *Prevent, Shape, Win* vision for the role of the Army in our society. I also want to talk about shaping your unit culture to be one of constant training and discipline—the twin keys to real military capability and readiness—so that you can shape the world as we need you to do.

We have all deployed and fought multiple times. We verified and grew in our understanding that all tactical and operational victory comes from the combination of fires and shock effect against an enemy. Shock effect is almost always delivered through maneuver and is always enabled by military engineering. Fires are made many times more effective through the use of military engineering—targeting and shaping the battlefield to better expose the enemy to destruction. We have been fighting our field Army formations and adapting their cultures to operate at the *speed of trust* and at the *speed of war* for more than a decade.

For some very good constitutional reasons, some very bad managerial reasons and, perhaps, even some political reasons, no such environment or operating culture called the speed of trust or the speed of war exists in the institutional Army. So, not all mechanisms for resourcing, scheduling, and planning are set up to truly enable the Army Chief of Staff's vision of Army shaping operations. The regionally aligned Army is one idea to accomplish these missions, but this concept is not complete and implementation has yet to begin. We need to examine what we are trying to shape and to think through how we can contribute to it by using the tools and resources in hand ***now***, even as we seek new tools and resources. We can all take action to shape our unit cultures to execute these important missions now, so that even as we fight to the conclusion of our combat role in Afghanistan, we can adapt our unit and institutional cultures to begin these important shaping missions.

But what are we really talking about in *shaping,* and how can engineers play a role in it? Some obvious examples of the preparation of geographic theaters for contingency operations are already under discussion—

- Building contingency bases to use for training or possible operations.
- Engaging and supporting foreign militaries through combined exercises.
- Training teams and construction efforts.
- Pre-positioning engineer equipment and materials where we expect to need them.

But our efforts must span all theater combatant commands (COCOMs), not just the five geographic commands. We can shape in every COCOM, geographic and functional, if we are thinking through our skills and roles. It helps to think about the competitions and conflicts that our country faces every day, in every domain, and in every COCOM.

The United States is a trading nation and an open society with many avenues for win-win exchanges with other nations and societies. Yet, we are still locked in at least nine different competitions (and sometimes conflicts) with other nations and societies every day. The daily news shows the evidence of these constantly. These nine competitions/conflicts are—

- Political.
- Economic.
- Information/propaganda.
- Geographic/territorial (the standard idea of wars in the public mind).
- Jurisdictional/territorial (such as who decides the international rules of the game and brings criminals to justice).
- Financial/governmental (who pays for, and who benefits from, a stable international order) .
- Ideological (how societies organize, operate, and integrate with other systems and cultures).
- Cybernetic.
- Scientific/technical.

I believe that our military engineer people, processes, units, and culture can play shaping roles in every one of these arenas of competition and conflict in every geographic and functional COCOM. By working with the field Army from all three components—Regular Army, Army National

(Continued on page 8)

Lead the Way

Command Sergeant Major Terrence W. Murphy
Regimental Command Sergeant Major

I have been in this position for about 19 months as of December, and I have seen many changes in the Engineer Regiment and in the Army. As we go through these changes, we must accept the idea that change should be a core competency. Change is inevitable in our military, and change must continue for us to move forward. Some of the things we have done in the past are no longer relevant for today's Army.

Two of the constants that remain are Soldiers and their education. We must maintain the drive to educate ourselves personally and professionally. College courses and Noncommissioned Officer Education System (NCOES) courses are necessary to reach that goal. Each of us starts working on our second career the day we join the Army; waiting until we are ready to retire should no longer be an option. Not only does going to college help the future of Soldiers and their families, but it also helps us as a professional Army. A college education brings a level of competence, comprehension, and personal professionalism to the Soldier. Educated Soldiers are generally better equipped to handle complex situations. They are also able to conduct research and then comprehend and restate that information in a lucid and intelligent fashion. This helps the units to better handle staff work because they have highly educated Soldiers in the ranks.

The NCOES is a must for the positions that we hold, and it renews professionalism in our military occupational specialties. There are no excuses for not attending NCOES courses. The backlog list continues to grow, and this needs to end. Our young leaders need to attend the schooling that will develop their abilities and allow them to perform at a higher level.

The Army has placed many different resources, such as the Army Career Tracker and Structured Self Development (SSD), at our fingertips to assist in the growth of our knowledge base and progression of our careers. The effective dates for SSD to become a prerequisite for NCOES courses will change as follows:

- Effective 1 April 2013, SSD Level 1 will be a prerequisite to attend the Warrior Leader Course.
- Effective 1 June 2013, SSD Level 3 will be a prerequisite to attend the Senior Leader Course and SSD Level 4 will be a prerequisite to attend the Sergeants Major Course.
- Effective 1 January 2015, SSD Level 5 will be a prerequisite for nominative assignments.

The SSD will assist Soldiers in different ways through the U.S. Army College of the American Soldier and the American Military University.

The tools are there; we must stop making excuses and execute. We must find the time for ourselves and our Soldiers so that they can make the leap into personal education. We are working on some credentialing initiatives for our enlisted population, and we must stop allowing our Soldiers to leave the Army the same way they arrived. We have to think out of the box so that our Soldiers are better equipped to face the world outside of the Army.

We are a profession of Army fanatics; and if we aren't, we should be. We should strive to be the best Soldiers we can be, first through standards and discipline and then through our skill sets (our military occupational specialties). We have to strive to meet the standards prescribed by the Army in everything we do. We need a commitment from everyone to ensure that we have the best people training civilians to become Soldiers, to ensure that we have the best noncommissioned officers training leaders at the noncommissioned officer academies, and to ensure that the best trainers are evaluating tactics and techniques at our combat training centers.

We have to reinvest in the Engineer Regiment with our best Soldiers and establish consequences and repercussions for those who do not meet the prescribed standards. Placing the right people, with the right skill sets, in the right places is a must for the success of our Engineer Regiment. As engineer Soldiers, we cannot afford to be single-focused. As the U.S. Army Engineer School commandant says, we have to be like a "Swiss Army knife"—multifaceted and able to demonstrate many different skills.

As the Army changes and reorganizes the brigade combat teams, engineer battalions will be inserted. These battalions will assist the brigade combat teams to balance the right people, the right number, and the right skill sets to make the unit more lethal and agile. Once again, understanding the entire process and the buy-in from the Engineer Regiment will only enhance the process as we begin the implementation phase of the brigade engineer battalion.

Essayons!

Show the Way

Chief Warrant Officer Five Scott R. Owens
Regimental Chief Warrant Officer

This month marks the completion of my first year as the Chief Warrant Officer of the U.S. Army Engineer School and Engineer Regiment. It's been a fantastic year, and I've especially enjoyed my site visits, where I met with many of the leaders and Soldiers serving in all three components of the Engineer Regiment. I haven't been able to visit every installation yet, but I have been impressed with the professionalism and esprit de corps of all those I've had the pleasure of meeting. The purpose of my site visits is threefold. First, I want to provide updates on the Engineer School Campaign Plan and the ongoing echelons-above-brigade redesign; it's always best to discuss this in person with a question-and-answer session included rather than to read about it. Second, I want to conduct warrant officer professional-development sessions with engineer warrant officers. Lastly, I want to inform enlisted Soldiers about engineer warrant officer opportunities. I've found that many Soldiers do not work near engineer warrant officers and are not fully aware of what positions they might qualify for or what they must do to apply. Chief Warrant Officer Four Jerome L. Bussey, the engineer warrant officer assignments officer, accompanies me on many of these visits. He's proven to be a great battle buddy as we discuss warrant officer accession opportunities, promotions, and assignments with Soldiers.

My gratitude goes out to those of you who have made heroic efforts to welcome me by scheduling senior leader office calls, arranging facilities, and getting the word out to enlisted Soldiers and warrant officers to attend. It's your efforts that helped me to make the most of my time. Over the next year, I will visit more units; and I ask for your continued support.

If you know of any Reserve Component (RC) units in your vicinity, be sure to include them as well. I'm happy to stay over weekends to accommodate their drill schedules. The Engineer Regiment's greatest shortages of warrant officers are in the Army National Guard and U.S. Army Reserves. The RC has unique challenges in recruiting warrant officers. One of the major obstacles is the limited pool of Soldiers in feeder military occupational specialties (MOSs) in RC units. This makes it especially important to seek out those Soldiers who do not possess the requisite feeder MOSs, but do have leadership qualifications, civilian skills and experience, and certifications that would qualify them. During the past year, I've worked with several command chief warrant officers of various states to find such Soldiers and we've actually selected a few for training as construction engineering technicians. One Army National Guard human resource specialist was recently selected for that training based on his former service as a platoon sergeant in the U.S. Marine Corps and his civilian experience managing his own construction company for 20 years. It's Soldiers like these that we need to seek out in order to increase our fills in the RC. As you participate in weekend drills, think about other Soldiers in your units who might have the civilian skills that would qualify them to apply as an engineer warrant officer.

Another exciting event this year is the relocation of all training for geospatial engineering Soldiers from Fort Belvoir, Virginia, to Fort Leonard Wood, Missouri. As I write this article, one class of geospatial engineering technicians (MOS 125D) has graduated from the Warrant Officer Basic Course and another graduated from the Warrant Officer Advanced Course. Recently, the first class of 14 geospatial engineer (MOS 12Y) students graduated. There are currently six MOS 12Y classes and one MOS 125D class in session; that makes 80 geospatial engineers in training at Fort Leonard Wood. The first 12Y Noncommissioned Officer Advanced Leaders and Senior Leaders Courses are scheduled to start in January.

As I reflect on the events of the past year, I look forward to the coming year even more. With the echelon-above-brigade redesign, the move of the geospatial engineering training, unit engagements, and RC events, there is no shortage of professionally rewarding activities to keep me positively engaged throughout the year!

Essayons et Faissons!

ECHELONS-ABOVE-BRIGADE REDESIGN: SETTING CONDITIONS FOR THE ARMY OF 2020

By Colonel Adam S. Roth

At the conclusion of ENFORCE 2012, the Commandant of the U.S. Army Engineer School ordered that the Capabilities Development and Integration Directorate at the Maneuver Support Center of Excellence, Fort Leonard Wood, Missouri, examine engineer forces in echelons above brigade (EAB). With the establishment of the brigade engineer battalion (BEB) a near certainty, the challenge was to look at what formations and capabilities remained to support the developing concept of the Army of 2020. The Army of 2020, which will be predominantly based in the continental United States, requires us to look holistically at the Engineer Regiment. We must consider the capabilities that we may need and those that we may have lost in more than 10 years of stability operations using well-established key terrain in the form of aerial ports of debarkation and seaports of debarkation. That key terrain fueled the mountains of steel that have become the American way of war. We need to look at what the "new" way of war will be and how engineers will set conditions for its success. The engineers of the Army of 2020 must—

- Enable the seizure, establishment, and expansion of lodgments in an immature theater.
- Be technically and tactically capable.
- Serve as the "Swiss Army knife" of the Army.

Everything we do in the Engineer Regiment emanates from the four lines of engineer support:

- Assure mobility.
- Enhance protection.
- Enable expeditionary force projection and logistics.
- Develop partner capacity and infrastructure.

This article highlights the role of two major formations. The BEB addresses only the first two lines of engineer support. The EAB redesign must produce formations that support all four lines of engineer support.

BEB

When the BEB is finally implemented, it will provide critical mobility, countermobility, and survivability capabilities at the point of need in support of the maneuver commander. While there will be very little vertical construction capability in the BEB modified table of

"Now that the BEB is becoming a reality, we look toward the types of units and capabilities that are required to provide the maneuver commander with solutions to problems . . . that span the combat, construction, and geospatial engineering disciplines."

organization and equipment, there are many opportunities for developing that capability:

- The BEB will serve as a mission command structure capable of assuming numerous EAB units, including construction forces.
- Echoing the Engineer School Commandant's desire to have no "single-purpose engineer forces," the combat engineers who make up the majority of the BEB may be required to develop basic construction skills above the level of erecting a HESCO® bastion.
- The BEB will include an engineer construction technician who can provide in-house training for BEB personnel and provide design capability, quality control, and electrical power management.
- The BEB may also cross-train with other construction forces with which it habitually associates.

Now that the BEB is becoming a reality, we look toward the types of units and capabilities that are required to provide the maneuver commander with solutions to problems at the point of need that span the combat, construction, and geospatial engineering disciplines.

EAB Redesign Community of Practice

The members of the EAB redesign initiative formed a community of practice across all three components: Regular Army, Army National Guard, and U.S. Army Reserve. It included representatives from the Joint Staff and the staffs of Department of the Army, U.S. Army Forces Command, U.S. Army Training and Doctrine Command, all Army service component commands (ASCCs), U.S. Army Corps of Engineers, National Guard Bureau, U.S. Army Reserve Command, and anyone who wanted to share in the stewardship of the Engineer Regiment. The community of practice is informed by the concepts of gaining and maintaining access and sea basing and by the results of the Unified Quest series of exercises such as AirSea Battle, sponsored by U.S. Army Training and Doctrine Command's Army Capabilities Integration Center. It also considers the emerging lessons learned and insights that fuel new Army trends such as the Army capstone operating concepts. The community of practice has met regularly via teleconference and in person since ENFORCE, has been studying the broad requirements of the maneuver commander in the Army of 2020, and has been ensuring that the Engineer School Campaign Plan and all EAB redesign concepts are fully nested within those Army and joint concepts.

Community of Practice Goals and Initiative

The goal of the community of practice is to inform the Total Army Analysis process that addresses fiscal year (FY) 2016–2020 by gathering views from the field about what will be needed to support the expeditionary Army of 2020. The Army has set benchmarks which will lead to restructuring objectives by FY 20. The community of practice is closely following those timelines to provide real-time inputs to the process. Membership in the community is very simple; interested stewards of the Engineer Regiment should contact the author at <adam.s.roth2.mil@mail.mil> to materially contribute.

The major initiatives that the EAB redesign community of practice is now working on to inform the FY 15–19 Total Army Analysis are as follows:

- **Engineer Construction Company.** A seminar in July evaluated numerous courses of action to get a more versatile company that combined vertical and horizontal capabilities. One potential solution, with a mixture of light and heavy, vertical and horizontal platoons, would allow predominantly horizontal engineer support for the lodgment and vertical support for later phases. The results of a survey conducted earlier this year will fuel the next force design update (FDU), coming in FY 13.
- **Special Operations Forces Engineer Support Squadron.** The Engineer School Commandant said during ENFORCE that special operations forces will remain as the "11th Army division" in contact for the next generation. With the pending reduction in U.S. Navy construction battalions and the loss of overseas contingency operations funds, the community of practice and the special operations forces community are developing a concept unit that would be employed in ways similar to the 249th Engineer Battalion (Prime Power). It would have linkages at the ASCC level for tailored force packages of highly skilled, cross-trained, and credentialed engineer Soldiers who are able to engage in the full range of military operations. The Capability Development and Integration Directorate at the Maneuver Support Center of Excellence is cooperating in the unit's development, and the concept of

the interdependence of special operations and conventional forces remains a driving force for this emerging capability.

- **Geospatial Planning Cell (GPC) Redesign.** There are currently not enough GPCs for every ASCC element, and the community of practice is finishing what will become an FDU to provide geospatial capability at every ASCC and ensure that key geospatial engineer and geospatial engineering technician leadership is available to mission command nodes. It will also ensure career progression within the GPCs. The contribution of geospatial intelligence to the joint force commander remains a critical capability that sets conditions for all phases of operations by special operations and conventional forces. The community of practice is studying ways to provide that critical capability at the point of need.
- **Early Entry and Setting the Theater.** A key area for discussion and development by the community of practice is determining early-entry and forcible-entry capabilities that support amphibious (littoral) and vertical (airborne/air assault) maneuver to secure a lodgment and to support the expeditionary Army of 2020. A strategic partnership with the U.S. Army Transportation School is being formed to support this initiative, and Engineer School leaders attended a joint logistics over-the-shore exercise at Fort Story, Virginia, in late August 2012. Key lessons learned from that training event, coupled with numerous video teleconferences, will drive the true requirements and capabilities determination process, which will affect the complexion of EAB and BEB forces. Few have had the opportunity to conduct training or real operations in these areas since the start of the War on Terrorism. The Engineer Regiment needs to recoup institutional knowledge, including historical studies. This is where readers can make their most significant contributions.
- **Regular Army/Reserve Component Roles and Integration.** By FY 18, the Engineer Regiment will be composed of 19 percent Regular Army and 81 percent Reserve Component Soldiers. The first order of business for the community of practice will be to answer the questions: What must be done? and Who will do it? The term *operational reserve* takes on significance when speaking of the EAB engineer force. The community of practice will examine how to keep the Reserve Component operational and relevant to these plans and concepts and will do so against the backdrop of declining fiscal resources. The Army Reserve Engineer General Officer Steering Committee, the Army National Guard Engineer Advisory Team, and the combined Chief of Engineers Reserve Component Engineer Council are partners in determining how the Reserve Component will remain relevant and ready to sustain Engineer Regimental requirements supporting the Army of 2020.

Starting in FY 13, the community of practice will continue with additional initiatives, all in support of the FY 16–20 Total Army Analysis:

- **Combat Company FDU.** The key determinant of this update will be what items are actually approved in the BEB modified table of organization and equipment. Realizing that the strengths of the BEB lie in mobility, countermobility, and survivability, a definitive gap analysis can determine what reinforcement may be required. That analysis will consider capability and capacity by the addition of EAB engineer units for the tactical fight and for requirements that potentially set the theater as well.
- **EAB Engineer Battalion FDU.** Critical to this discussion will be whether the Army of 2020 requires sole-purpose battalions (combat or construction) or multifunctional battalions at EAB. An additional concern is whether the reversal of modularization (the return of A, B, and C companies) might also serve to habituate engineer support and provide a more stable platform for mentoring. Working hand in hand with logistics and joint partners, these EAB battalions will probably be critical in future plans for setting the theater and for early-entry operations. The other question that must be considered is "How will this battalion be effective across the entire range of military operations, such as supporting theater security cooperation in Phase Zero, supporting the initial fight in Phases 2 and 3, and also supporting the transition to stability operations in Phase 4 and beyond?"
- **Urban Search-and-Rescue Concept Plan.** The Engineer School has assumed proponency for this unique capability. Units such as the 911th Engineer Company and numerous formations under Defense Chemical, Biological, Radiological, Nuclear, and High-Yield Explosives Response Force and the Homeland Response Force rely on this capability. The Engineer School and the Maneuver Support Center of Excellence continue to define

"The term* operational reserve *takes on significance when speaking of the EAB engineer force. The community of practice will examine how to keep the Reserve Component operational and relevant to these plans and concepts . . ."

requirements and conduct experiments across the doctrine, organization, training, materiel, leadership and education, personnel, and facilities domain, moving this capability toward institutionalization.

- **Concept Plan for Contingency Basing Management and Operations.** This will serve as the focus for many evolving concepts that include operational energy; base camp development, expansion, and closure; and the Contingency Basing Integration Technology Evaluation Center. Lessons learned from Operation Enduring Freedom and Army level forums are fueling the discussion about integrating and institutionalizing these concepts. The more that these concepts are integrated, the less need there will be for a logistics-intensive tail for the expeditionary Army of 2020, which will be forced to operate efficiently in austere environments.
- **Theater Engineer Command (TEC) Redesign.** The TEC, currently the highest echelon of mission command in the Engineer Regiment, requires reevaluation. The TECs (including their subordinate, deployable command posts) have not been used as intended since the start of Operation Iraqi Freedom. Also, the TEC structure has focused more on mission command and less on technical competence, which had been an engineer strength. The TEC redesign will examine ways to restore technical competence, incorporate all Army components into this unique and critical asset, and look at including joint equities, perhaps by creating a joint TEC. Most importantly, it will seek to create a unit that will be deployed and employed.

Summary

The EAB redesign and the community of practice are initiatives that have been well supported by the field. This article is meant to provide a status report on how far the initiatives have progressed and to solicit support from anyone who has not yet had the opportunity to contribute. We are bound only by the passion of the Engineer Regiment members to create the most responsive formations to support the maneuver commander at the point of need. As always, the author welcomes vociferous debate.

Colonel Roth serves as the deputy assistant commandant (Army Reserve) at the U.S. Army Engineer School. Before graduating from the U.S. Army War College, he served as the commander of the 844th Engineer Battalion and deployed to Iraq as part of Task Force Sky. He is a graduate of the U.S. Army Command and General Staff College and holds a master's degree in mechanical engineering from Boston University.

(Clear The Way, continued from page 2)

Guard, and U.S. Army Reserve—we are developing the concepts for this shaping activity and trying to put in place the institutional support structures and processes to enable the field Army to conduct this activity in a prioritized, planned, and well-resourced way. We are far from having these structures and processes in place; and because of the sclerotic and bureaucratic nature of the institutional military, we will not have them in place soon. This means that people and units must begin executing these shaping missions before ambiguity is resolved and before straightforward processes and plans exist. Just as we do in war, we must adapt and execute now and help the lagging institution to keep up with us—or at least get out of the way.

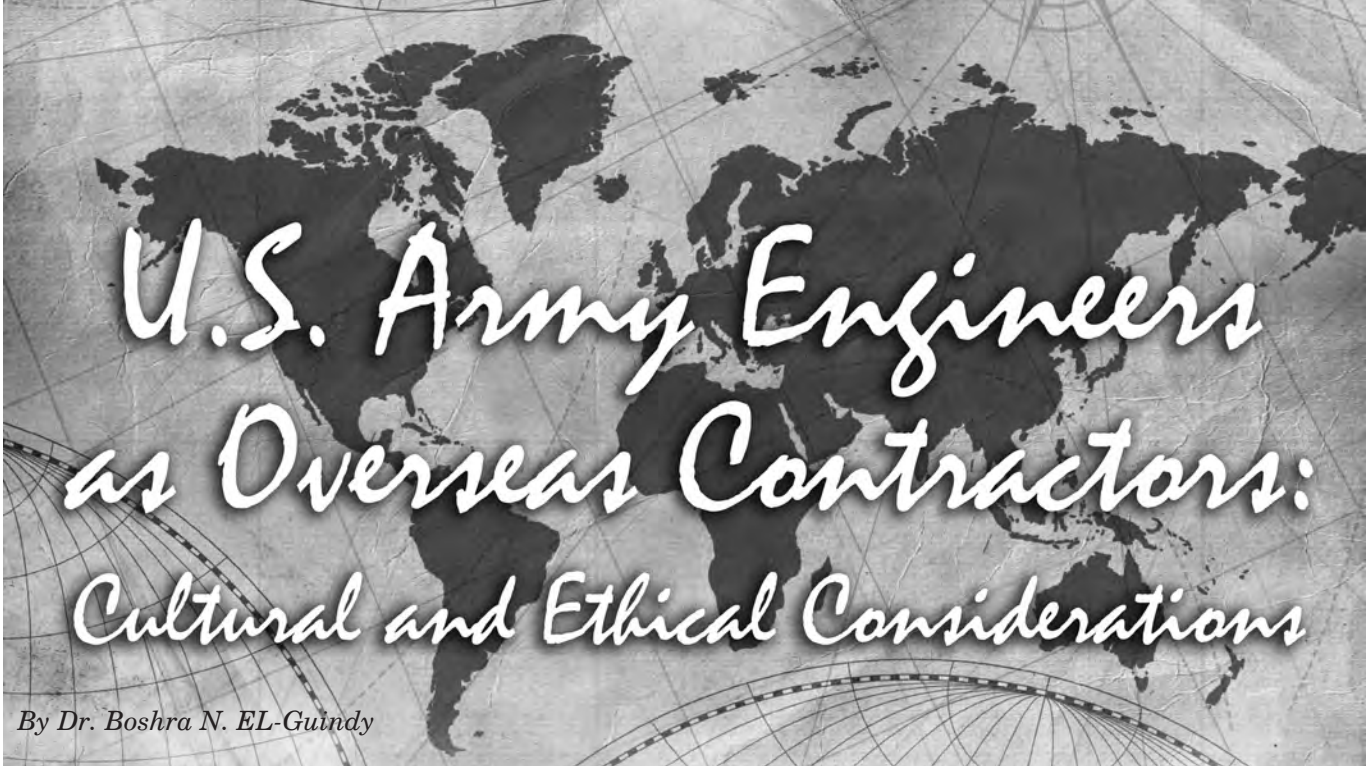
How can our leaders, from corporal through general, do that? First, by adopting an iron will to train. By cultivating the mind-set to turn every task (however administrative it may seem), every tasking (however unrelated to the mission-essential task list it may seem), every potential training distractor, and every available bit of the calendar into training. It can be done, but not if you are complacent, unimaginative, and weak-willed.

War is a process of imposing order on chaos and so is the task of making a unit disciplined and ready and active in shaping our world. Practice war every day. Change everything within your power and authority to work at the speed of war and the speed of trust, questioning your own practices that go against that. Here at the Engineer School, we are doing that for our own work for the institutional Army. We pledge to continue to help our field Army engineers—from COCOM engineers through the smallest engineer detachment—to operate this way by turning everything into training and by enabling their impact to the COCOMs now, not years in the future when the institutional Army and Department of Defense have finally come around to support that which is essential now.

We are open to your ideas, input, requests, and requirements; and we want them all as soon as you can offer them and as often as you can refine them. I would like to publish your ideas in this journal and see them published and discussed elsewhere—at unit training meetings, at brigade or division semiannual training briefs, at COCOM planning conferences, and in current and future institutional Army processes and professionalism efforts. We have all fought long enough and often enough to know that the system will not anticipate our battlefield needs. We must forge ahead and drag the system along. What are you waiting for?

Essayons!

The "Engineer Commandant's Reading List" has been updated and can be found at the following publically accessible link: <http://www.wood.army.mil/usaes/library/documents/ENGR_CMDT_READING_LIST_2012.pdf>.



U.S. Army Engineers as Overseas Contractors: Cultural and Ethical Considerations

By Dr. Boshra N. EL-Guindy

Introduction

The U.S. Army Corps of Engineers (USACE) is the Nation's main federal engineering organization, providing world-class experts in engineering and construction. USACE is a dynamic, multifaceted organization that supports U.S. peacetime engagement activities in many parts of the world. It also supports initiatives of the U.S. military, embassies, and other agencies throughout the world. In addition to supporting the U.S. Department of Defense, USACE provides engineering, environmental, and construction management and other related skills to private U.S. firms, other U.S. agencies, foreign governments, and international organizations. USACE also assists countries with their transition to democracy by providing their governments with the technical and professional assistance necessary to modernize and improve their civil and military infrastructures.

U.S. engineering contractors know the American standard of ethics. However, this standard can lead to cultural and ethical conflict when those engineer contractors start implementing projects overseas. Reducing the likelihood of conflicts requires cross-cultural knowledge. Knowing the culture of the country where an engineering project is to be implemented can lead to an understanding of that country's cultural and ethical systems. Ethics and the expectations within different cultures affect all contracting transactions. Therefore, it is essential for U.S. Army contracting engineers to understand the expectations of their counterparts around the world.

Understanding the cultural bases for ethical behavior in the United States and the countries where a construction project is to be carried out can equip Army engineers with the knowledge needed to succeed in international business. That knowledge, based on clear managerial guidelines, can add to the value of that understanding.

American business practices often concentrate on the fundamentals. In the business engineering sense, the fundamentals seem to be world-class product development and competitive pricing. Common sense would indicate that focusing on the basics makes success in competitive markets possible. However, serious cultural issues might be encountered in business practices between the United States and other nations when construction projects are being carried out. Challenges and conflicts can arise from more subtle cultural issues than fundamental issues related to product and price. In moving from domestic-focused projects and operations to an international business theater, other factors may be essential for success.

Cultures and the expectations within them can affect all business engineering transactions overseas. There is no alternative for American engineering contractors to understand the expectations of their business counterparts around the world. An inability to grasp those basic cultural factors may lead to the failure of projects before they can even start. Different cultures have different business practices and different rules of conduct which, if understood, could pave the way to success.

Cultural values are transmitted to members through a long and complex process of socialization where parents, education, religion, and the society at large are the primary providers of that process. There are also secondary variables that affect ethical behavior. These include differences in the systems of laws, rules and regulations across nations, accepted human resource management systems, and organizational and professional cultures and codes of conduct. The important result is that some cultures might view certain practices with different levels of tolerance. Managers engaged in international engineering transactions have to deal with these variations.

American Ethical Standards

For Americans, the 1980s and 1990s marked the realization of the global economy. The biggest impact seems to have been on small businesses. Now that the U.S. government has increasingly entered the global marketplace, Americans encounter different ethical frameworks than those of their domestic markets. This very shift points to the need to manage potential cultural and ethical conflicts before they turn into international conflicts. Cultural or ethical conflicts may arise as a result of two different ethical standards meeting in a business transaction. Even within the United States, ethical differences can lead to differing business practices. In their international operations, U.S. companies are banned from engaging in activities that can be construed as unethical or illegal at home. Bribery to obtain business, for example, is strictly forbidden for a U.S. enterprise, no matter where that bribery takes place. Company officers can face jail terms and/or heavy fines if they engage in taking or offering bribes. In some countries, however, bribery is a way of life and no business can materialize without it. These countries have a more tolerant or pragmatic view of bribery. Even in other Western nations, bribes are tolerated to the extent that they may be explicitly tax-deductible.

Cultural Basis for Business Ethics

There is a common agreement among anthropologists and psychologists that a country's culture reflects the ethical mind-set and conduct of its citizens. This conduct is displayed in two main ways: through overt conduct reflected in public or corporate statements and actions about ethical behavior and through covert ethical attitudes and values of certain cultural groups. Culture is always difficult to define universally. It represents the values and patterns of thinking, feeling, and behavior in an identifiable group. While many nations, including the United States, possess the infrastructure of modern, developed civilization, culture represents how people within a civilization interact with one another. This interaction can be a challenging undertaking.

The most subtle and complex aspect of culture represents values and the assumptions that we use to perceive and deal with reality. For example, some cultures perceive people as essentially good, while others take a more negative view. Values form the foundations of individual and business interactions.

Communication Styles

Americans like to talk and tend to be uncomfortable when there is silence during a conversation. Some Americans view silence as a challenging negotiating tactic. Sometimes silence looks like a stone wall that can hamper interaction and negotiation. However, in many nations silence is a cultural value which is a tool for reflection and careful thinking. Many Arabs and Asians are strong believers of the English proverb: Speech is silver, but silence is golden.

Inherent in the American passion to talk is a penchant for exaggeration, rooted in the tradition of frontier "tall tales," as exemplified in Hollywood movies. Thus, some Americans believe it is all right to exaggerate. Fluency and the "gift of the gab" are generally viewed as admirable and desirable. A look at some American political figures shows clearly that they often gain office on the strength of their superior use of the language.

Another cultural attribute of Americans is the way they think. Americans are reputed for being pragmatic thinkers who proceed in a linear fashion from Point A to Point B, then to a conclusion at Point C. In doing so, they endeavor to find a solution that may be unorthodox, innovative, or revolutionary. Americans believe that most productive thinking is linear and rational. In their endeavors to solve a problem, they seek results and outcomes that are based on concrete facts.

Most cultures have an ingrained sense of physical space and how people should interact. The American culture has developed several traditions that have implications in business. The handshake is a common, expected ritual when meeting someone. In terms of physical contact, some Americans touch business acquaintances politely to express the sentiment, "We are partners." In many cultures, however, touching is to be avoided at all costs. In many cultures, avoiding direct eye contact with another person out of respect of the other's private space is the norm. This differs markedly in the United States, where direct eye contact is very important for showing sincerity in the American society.

Americans like to stand at about an arm's length away from each other, defining their comfort zone. This also conveys a sense of trust because the two individuals stand in a mutually vulnerable space. In certain areas, like Japan, the physical space is about 3 to 4 feet, the space needed for two people to face each other and bow politely. In the Middle East, physical space may be as little as a foot, conveying a heightened sense of trust. An American meeting with a Saudi colleague may feel very uncomfortable with the limited separation space and even back away to increase it.

Negotiation

Business typically involves negotiation and bargaining. Different cultures have different models of thinking and ways to solve problems. In many countries, negotiations and contracts should link the association between people by confirming the strong human bond instead of resorting to legal binding. Many Americans view negotiation and the signing of a contract as the final stage of association for a business. However, for many business managers across the world, it is the first step to a deeper relationship. Continued negotiation is common because a legal contract does not necessarily give any party the upper hand.

In negotiations, Americans usually openly discuss advantages, disadvantages, and alternatives. People in many other cultures discuss and bargain as well, but the key in the negotiation process is to establish common

feelings or bonds between the parties. The strategy is to achieve a win-win goal situation. This contrasts with the one-sided style of negotiations where the winner takes all. Many cultures also prefer contracts that do not have too many details and prefer all issues to be subject to further negotiation afterwards, even after the contracts are signed. However, they might be meticulous note-takers and will exploit verbal comments made during negotiation that are not part of the written contract. In contrast, Americans are very legalistic and like to spell out all details in contracts, which will be backed fully by the U.S. legal system.

Decisionmaking

Decisionmaking processes are influenced by the decisionmaker's culture. Americans are often entrepreneurial risk-takers, quick to make a decision and willing to change if it turns out less than ideal. Many cultures are not, and the customer's decisionmakers may try to avoid the possibility of being wrong at all costs. Since the decisionmaker's reputation may be at stake, he might take a long time to arrive at a decision while discussing the issues and alternatives throughout his organization to develop a consensus. Project managers must understand the culturally influenced processes and not become frustrated. This also applies to the negotiating techniques discussed earlier.

In many male-dominated societies, gender issues can make business dealings difficult for an American female engineering project manager. She should follow simple, common sense rules of modesty and avoid trying to change the local culture.

Conclusion

Culture forms the foundation for ethical behavior and determines what behavior is considered ethical and what is considered unethical. Potential ethical conflicts arise simply from the different values inherent across cultures. Cultural differences in international engineering projects cannot be avoided or ignored. A better understanding of influential cultural factors will help reduce and manage conflicts in international construction projects. Recognizing and sensibly manipulating cultural differences could allow improvements in the efficiency and profitability of international projects.

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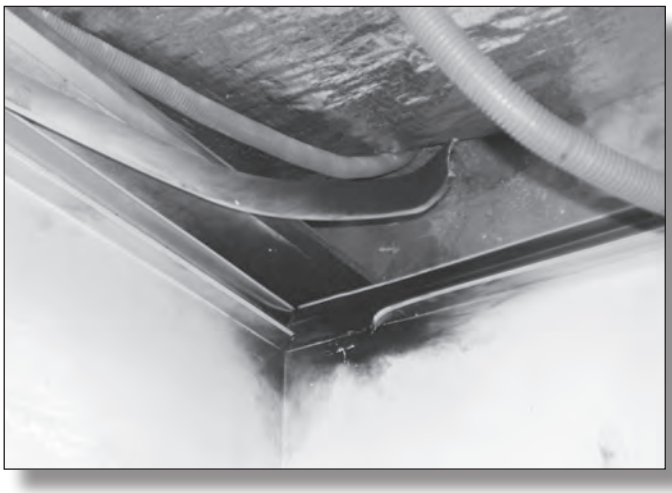
Dr. EL-Guindy holds master's and doctorate degrees in applied linguistics from the University of Illinois at Urbana-Champaign, master's degrees in education and psychology from Ain Shams University in Cairo, Egypt, and graduate diplomas in English as a second language from The American University in Cairo, Egypt, and Colchester English Study Centre in Colchester, United Kingdom. He has taught at universities in Egypt, Australia, and the United States. Currently, he is the cultural and language advisor at the Maneuver Support Center of Excellence at Fort Leonard Wood, Missouri.

By Captain Kyle L. Poppe

Before deploying to Afghanistan, I had no idea what a contracting officer representative (COR) was or what the job entailed. Many people who fill this position do not know what to do or what is expected of them. There are online classes through the Defense Acquisition University that will help get new CORs started, and classroom training will be available at the first duty location. This assignment is a great opportunity for engineers to expand their knowledge and to use their skills to design and construct buildings.



A COR accepted poor-quality construction that resulted in this fire at the author's tactical operations center.

Serving as a COR can be a challenging, but gratifying, experience for an engineer. A COR is the go-to person for contractors and the contracting officer (KO). The COR may plan, design, and oversee service contracts, building and road construction, and force protection upgrades. The COR is also responsible for paying contractors, managing on-site safety for the Army, and maintaining quality control. Depending on the number of contracts that a COR oversees, the job can quickly become overwhelming. The COR must know what the statement of work (SOW) dictates and how to fix shortcomings within it. Before the project starts, the COR should read the SOW and have a complete understanding of the project and its parameters. The SOW is the foundation for the contract. If something in it is not right, it is up to the COR to raise questions about it before the preconstruction briefing. As with any construction contract, there are sure to be missing items. It is more difficult to add missing items once the contractor has started work than to perform a good "scrub" of the SOW beforehand. Once the SOW is understood, the COR should start building a quality assurance/quality check (QA/QC) form, which will become important once the project starts.

The COR can make or break a project in many ways. Mistakes made by contractors are more difficult to discover and repair if site visits are too infrequent. The COR should have contact information for the contractor and any on-site managers that the contractor employs. In the construction business, it is not necessary to have daily site visits, but visits should be productive. The COR should always—

- Inform the contractor ahead of site visits so that issues can be effectively discussed and resolved.
- Ensure that the contractor has on-hand sample materials needed for future phases of construction before getting to that phase of construction.
- Remain vigilant to the quality of materials and workmanship.

If there are deficiencies that the contractor does not want to fix, the KO will assist in ensuring that the corrections are addressed. Although it is not the preferred method, a notice to stop work from the KO is sometimes necessary to provide a high-quality product.

To guarantee that the customer is getting a good project or service, the COR must ensure that materials meet quality standards. Just as they do in the United States, contractors in other countries sometimes take shortcuts to save time and money, testing the construction knowledge of the COR. Although construction principles are the same in any country, the methods of construction vary greatly. In Kandahar, Afghanistan, I learned that day laborers earn only about $8 a day, but expensive equipment rental and fuel greatly increase project costs. Contractors there preferred to pay cheap day laborers rather than rent expensive equipment, even if that equipment would reduce time for the project and save labor hours. Also, day labor equipment operators lack experience, which reduces the quality of work and increases the risk of accidents.

Contractors in Afghanistan have many sources to get materials and supplies, and they may try to save money by purchasing inferior materials. Examples of quality control where a COR must be alert are as follows:

- Rebar for construction in Afghanistan came from Pakistan, Turkey, and even Iran. A COR can determine if a contractor is using high-quality rebar by attempting to bend it. If rebar cracks when bent, it should be rejected. If the SOW specifies 16-mm rebar, the COR must measure the diameter of the rebar to ensure that the proper size is provided.
- In Kandahar, contractors may employ good masons, but select low-quality materials for concrete. With many projects, contractors tried to add river rock and use small-diameter crushed rock for concrete to cut costs. The selection of concrete was another lesson learned. Some brands are on a "do not use" list because their strength, once set, is too low. But since this type of concrete is cheaper, contractors may try to use it.

The twist-on wire connector in a hot circuit was one reason for the fire.

Wiring entering the building through a polyvinyl chloride pipe, wire that was too small for the load, and wire that was not double-insulated contributed to the fire.

- Contractors may use wiring that is underrated for the electrical requirements of the circuit, that is not double-insulated, or that does not have a ground wire. A COR who is not knowledgeable in electrical standards can get help from the U.S. Army Corps of Engineers or from the KO. I once was faced with a SOW specifying the use of North American Electrical Code 2008, which is the 110-volt electrical standard for the United States. Most projects overseas use 220-volt systems, so the COR should ensure that a SOW dictates the use of international codes or local electrical codes if there are any. The National Electrical Code® and international standards guides are available online at many locations, including <http://www.neca-neis.org>.
- Other quality control issues may include plumbing, paint, windows, doors, roofing, light fixtures, furniture, and water heaters.

Contract Approval Process

The KO will be a COR's best friend when dealing with contractors. In addition to the KO, a project management (PM) team can be helpful in a

Latrine pipes with a 90 degree bend were a mistake caught by a COR.

The plumbing solution included using 30 and 60 degree bends.

number of ways. The team can help with the SOW approval process by ensuring that it complies with legal and financial rules for contracting and by editing the SOW so that it is as complete as possible. This will reduce the number of changes needed as the project proceeds. The team can work with finance officials to assure funding for the project and ensure that necessary documents are in order before a project begins. The PM team will primarily provide assistance before a project starts, but the KO helps most after the project starts.

After the KO and PM team have provided the COR with the necessary documents, it is time to meet the contractor at a preconstruction meeting. The preconstruction meeting establishes what will be expected of the contractor. The COR should inform the contractor that all materials will be inspected before construction proceeds. If quality problems arise, the COR should explain to the contractor why the materials are not acceptable and cite material requirements in the SOW. This is a good time to ensure that the QA/QC forms for the project are updated and are being observed. The COR should request that the KO, a PM team member, and a member of the chain of command attend the preconstruction meeting. At a minimum, the COR should have a coworker attend. The presence of others lets the contractor know that a project is important and that an entire organization has a vested interest in it. Also, a list of people attending the meeting can be helpful if it becomes necessary to verify that the contractor was fully informed about the requirements of the SOW. Before the end of the meeting, the COR should address all contractor concerns. It is wise for the COR to learn local customs and not to assume during deliberations that the contractor is ignorant of the English language and American slang.

A COR has an obligation to ensure that customers get the project or service for which they are paying. On projects where the COR tries to be a friend to the contractor, rather than the voice of the military, the result is usually poor-quality construction and low standards. When a contractor is not meeting SOW requirements, the COR should review the QA/QC forms and forward them to the KO. The QA/QC forms are the record of where the contractor has met—or failed to meet—the SOW requirements. A COR who cannot be at the work site daily should make site visits at least twice a week and complete the QA/QC, depending on movements, security, and other daily wartime missions.

Additional COR Duties

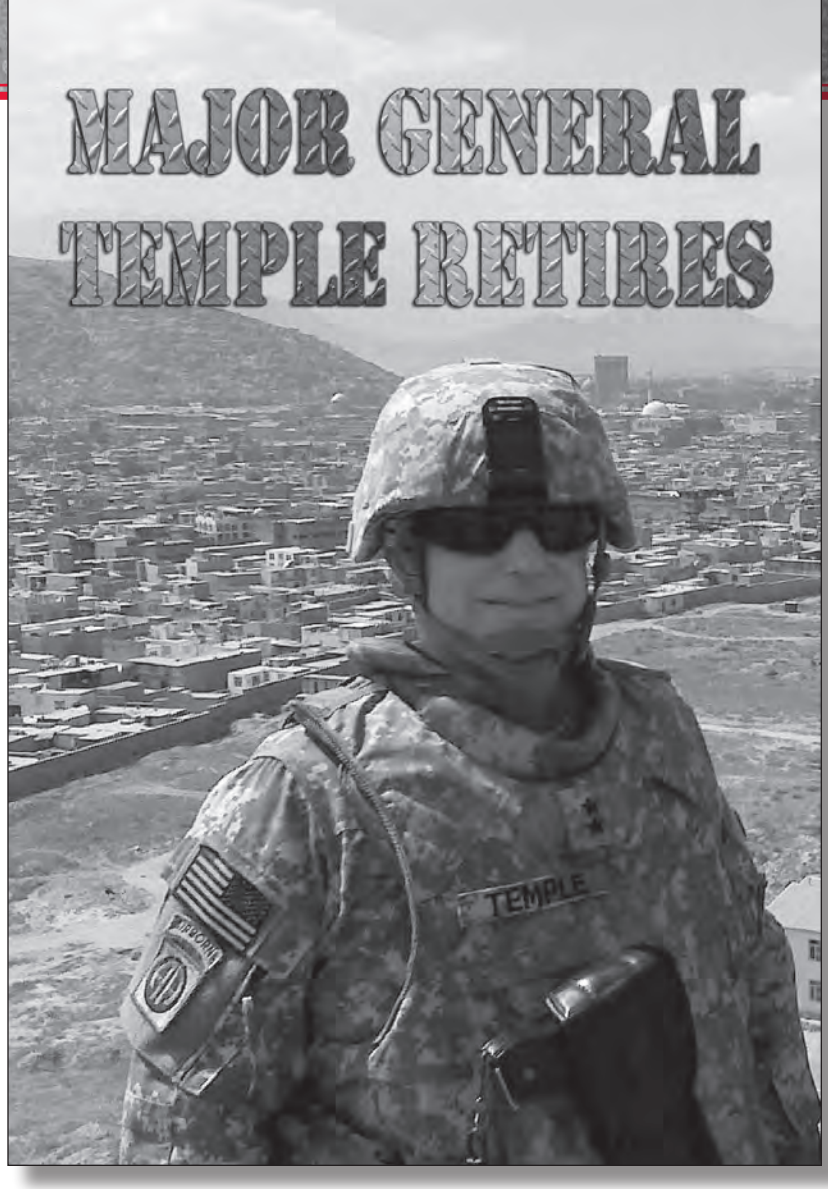
A COR might also be required to act as the project payment officer or field ordering officer, responsible for filing documents to get funding and to get the project started. The chain of command should dictate which funding is appropriate and what projects have priority. There are several ways to fund projects. Since there may be cost limits for projects, depending on the funding source used, it is important for a COR to understand those sources and the overall cost for the project.

A good filing system is also crucial. Records must be kept for 2 years after a COR turns responsibilities over to a replacement. Computers make this easy, but a backup is important in case computer problems arise. The payment process for a project is easy as long as proper documents are maintained and the PM team helps ensure that the documents are available. The COR must work with contractors to complete some of the documents, and many contractors are familiar with the process.

In the last year, I went from being a confused engineer with little contracting knowledge to becoming a confident COR. The job is a 180-degree change from performing route clearance. Engineers often find themselves working many different facets of the engineer realm, and being assigned as a COR is not a punishment. Engineers who find themselves in this role should welcome the challenge and use the opportunity to develop their professional scope.

Captain Poppe was a COR while assigned to Task Force 435 in Afghanistan from February to December 2011. As an enlisted Soldier for 16 years, he served as a heavy construction operator, a light construction operator, and a combat engineer. He holds a bachelor's degree in business administration from Touro University, Vallejo, California and is a recent graduate of the Engineer Captains Career Course.

MAJOR GENERAL TEMPLE RETIRES



By Mr. Bernard W. Tate

Major General Merdith W.B. (Bo) Temple, deputy commanding general of the U.S. Army Corps of Engineers (USACE), retired from the U.S. Army on 31 August after serving the Nation for more than 37 years. Major General Temple served as deputy commanding general since January 2010. Among his accomplishments, he served the longest stint as acting commander in the history of USACE, from June 2011 to May 2012, between the retirement of Lieutenant General Robert L. Van Antwerp and the assumption of command by Lieutenant General Thomas P. Bostick as the new commanding general and Chief of Engineers.

"I'm happy and proud to have served the Army and the nation with so many wonderful Soldiers and civilians and in so many different locations," Major General Temple said during his retirement ceremony. A native of Richmond, Virginia, he graduated from the Virginia Military Institute with a bachelor's degree in civil engineering in 1975 and was commissioned a lieutenant in the U.S. Army. He also holds a master's degree in civil engineering from Texas A and M University and is a graduate of the U.S. Army Command and General Staff College and the U.S. Army War College. He was deputy commanding general for Civil Works and Emergency Operations and deputy commanding general for Military and International Operations, Washington, D.C.; commander of USACE, North Atlantic Division, New York City, New York; and commander of Transatlantic Programs Center, Winchester, Virginia.

Other assignments include theater engineer (C-7), Combined Joint Task Force 7 in Iraq; Assistant Chief of Staff, Operations (G-3), XVIII Airborne Corps; and Commander, 20th Engineer Brigade (Combat) (Airborne Corps) and the 307th Engineer Battalion (Combat) (Airborne).

Major General Temple's achievements and awards include the Distinguished Service Medal, Legion of Merit with two oak leaf clusters, Bronze Star Medal with two oak leaf clusters, Joint Service Commendation Medal, Defense Meritorious Medal, and other service and unit awards. He holds the Master Parachutist badge.

Mr. Tate is the editor of Engineer Update*, at USACE headquarters.*

Everyone Wins With Personnel Force Innovation

By Lieutenant Colonel Ginger K. Norris

Personnel Force Innovation (PFI) is a little-known program chartered in 1996 by the Under Secretary of Defense (Comptroller) to place National Guard and Reserve personnel on active duty tours with Department of Defense (DOD) agencies for 1 to 3 years to support missions for all branches of service. This article focuses on the U.S. Army Corps of Engineers (USACE), but PFI is available to a vast array of DOD agencies. PFI flexibly mitigates personnel shortages within DOD by giving commanders the latitude to tailor a program to meet the needs of their particular command. In fact, personnel serving on a PFI tour do not even have to serve in their own occupational specialty or branch of service. As such, customer organizations can take civilian experience into account along with military experience when selecting personnel for their staff. For example, a U.S. Army Reserve infantry officer who is a licensed and registered architect could serve in—

- A traditional infantry position such as operations officer.
- A branch-immaterial position such as combatant command watch officer.
- A USACE position such as architect.

Although USACE has hundreds of Soldiers and Airmen supporting it on active duty through PFI, USACE is not the only DOD agency taking advantage of this program. Customers range from U.S. Air Force Materiel Command to the U.S. Army Office of the Program Manager–Saudi Arabian National Guard. The specialties in demand are equally varied, ranging from durable property manager to sheet metal mechanic. USACE regularly demonstrates the diversity and flexibility that PFI offers a command. Ranging from building infrastructure in Afghanistan to constructing a Department of Veterans Affairs hospital in the continental United States, PFI has given USACE the ability to "surge," based on its mission requirements, without making the long-term commitment of a full-time hire. While Soldiers and Airmen serve on PFI tours, they benefit from training opportunities because of their active duty status. PFI Soldiers have even attended schools such as the U.S. Army Airborne and Air Assault Schools. Professional development opportunities and advanced military schools are offered to PFI personnel to ensure that they complete their tours with skills that will ultimately benefit their branch of service when they return to their National Guard or Reserve status.

There are currently more than 82 PFI positions available. Organizations like USACE that are "project funded" or "reimbursable" (unlike typical troop units) can fund a Soldier's salary directly from their operational account. The availability of project funds provides an abundance of PFI positions within such organizations. It is important to make this distinction for decisionmakers to understand that the decline of funding for overseas contingency operations does not prevent them from filling critical shortages.

"From a human capital perspective, PFI offers DOD managers the opportunity to increase their workforce . . . with quality military personnel who will help them save resources while simultaneously increasing productivity."

The key to funding is the flat pay rate—the civilian equivalency rate—that agencies pay. This rate is set each

year by the Office of the Under Secretary of Defense (Comptroller) under guidance in DOD 7000.14-R, Department of Defense Financial Management Regulations (FMRs), Volume 7A (Military Pay Policy and Procedures–Active Duty and Reserve Pay), found at <http://comptroller.defense.gov/fmr/07a/>. Once funded, personnel receive full active duty benefits. Although PFI has met the greater demand for positions created by our heightened operational tempo, the program's success is somewhat impervious to projected DOD budget reductions because of its unique funding methods. PFI allows organizations with critical vacancies to fund the labor costs associated with the mobilization of National Guard or Reserve personnel via working capital funds transferred on a Military Interdepartmental Purchase Request.[1]

A finance noncommissioned officer for PFI says that he has noticed PFI participation levels remaining consistent over the past 18 months despite projected downsizing. He stated that while some agencies are reducing the number of PFI vacancies they advertise, others are broadening their search for qualified personnel. PFI has also experienced a resurgence of past customers who had not used PFI for several years but are now returning, even as newer customers are collaborating with PFI to fill their shortages.

The project-funded nature of PFI allows the customer organization to establish position criteria, announce a vacancy on the PFI Web site, screen applications, and interview candidates. Rather than receiving new personnel forcibly assigned from higher echelons, the customer organization can choose the right candidate to meet its needs. The process is similar to the civilian hiring process and provides the customer organization a great deal of flexibility to tailor the position description to fit its needs. This enhances the quality of personnel because the selection is competitive.

Major Shaun P. Martin is a great example of the caliber of personnel an organization can recruit using the PFI program. Major Martin, an Oregon Army National Guard engineer who recently completed a 2-year PFI tour with USACE San Francisco District, was awarded the Federal Engineer of the Year Award during his PFI tour. He credits PFI for allowing him to learn how USACE operates as an enterprise. PFI afforded Major Martin the opportunity to work alongside Regular Army, U.S. Army Reserve, and civilian engineers and also personnel from other agencies such as the Coast Guard, demonstrating the cross-component and joint nature of the program. PFI afforded the San Francisco District the opportunity to recruit a quality field grade officer with the experience needed. Major Martin managed the San Ramon Valley Recycled Water Program, a project designed to supply 2.4 million recycled gallons daily to irrigation customers as part of a federal stimulus through the American Recovery and Reinvestment Act of 2009. He is also credited with using his skills and expertise to overcome significant project delays that occurred before his arrival. Major Martin's PFI tour not only satisfied the needs of the PFI customer organization—the San Francisco District—but also those of their customer, the local community.

For Agencies Seeking to Fill Vacancies:

- Defense agencies seeking temporary workforce assistance complete a PFI position order form describing the position and its requirements.
- PFI advertises the position on its Web site to a potential candidate pool of more than 500,000 qualified National Guard and Reserve service members.
- Service members apply for positions via the PFI Web site.
- Applications from the most qualified candidates are forwarded for review by the defense agency, which will interview and select a service member.
- The defense agency notifies PFI of the selection and provides Military Interdepartmental Purchase Request funding for the cost of the tour.
- PFI processes the service member's request for orders; and upon approval of those orders, the service member reports for duty at the defense agency.

From a human capital perspective, PFI offers DOD managers the opportunity to increase their workforce for a finite time period with quality military personnel who will help them save resources while simultaneously increasing productivity. For the applicant, PFI offers endless unparalleled professional development opportunities. Finally, the civilian managers of those accepted into PFI will get personnel with more skills, more experience, and more to offer their own organization—regardless of whether the business has a military affiliation. By using PFI, every-one wins.

For more information, visit the PFI Web site at <http://pfi.dod.mil> or its Facebook page at <https://www.facebook.com/PersonnelForce>. Contact the PFI office by mail at HQ, DFAS/PFI, 8899 East 56th Street, Indianapolis, IN 46249-0301; by e-mail at <pfi@dfas.mil>; or by phone at commercial (317) 212-2828 or DNS 699-4524.

Endnote:

[1]Military Interdepartmental Purchase Request, DD Form 448.

Reference:

DOD 7000.14.R, Department of Defense Financial Management Regulations (FMRs), Volume 7A (Military Pay Policy and Procedures–Active Duty and Reserve Pay).

Lieutenant Colonel Norris is a U.S. Army Reserve engineer currently serving on a PFI mobilization as the military missions operations officer at USACE headquarters in Washington, D.C. She holds a master's degree in public policy administration from the University of Missouri–St. Louis and is a certified professional project manager.

Engineer Staff Development While Deployed

By Lieutenant Colonel Jon S. Middaugh

When a unit deploys, it is essential for its leaders to focus on the mission first. However, at the same time they are coordinating the completion of essential tasks, engineer battalion executive officers can facilitate the professional development of battalion staff officers for improved efficiency during the fight and for their future growth as U.S. Army officers. With an emphasis on open communication and a very modest investment of time and effort, staff officers can receive and provide meaningful feedback and become a better-functioning and more tightly knit team while deployed.

The mid-deployment assumption of route clearance operations forced the TF Gridley staff to adjust its construction-focused procedures and battle rhythm.

In January 2011, the 1249th Engineer Battalion, Oregon Army National Guard, deployed to Regional Command–East to support Operation Enduring Freedom, becoming part of the 176th Engineer Brigade Task Force Hammer. For most of the first half of the deployment, the battalion had mission command of two vertical engineer companies, two horizontal engineer companies, a survey and design team, a concrete detachment, and a U.S. Air Force well-drilling detachment. Combined with the Headquarters and Headquarters Company and Forward Support Company, these elements consisted of more than 900 service members and constituted Task Force Gridley. They quickly began to conduct dozens of force protection, freedom-of-movement, Afghan National Army partnership, and civil-military operations each month.

First Approach

After approximately 2 months of operating in the challenging logistical and security environment of Afghanistan, each company commander was asked for candid, confidential feedback on what the battalion staff sections were doing right and what they could improve. The "sustain" and "improve" comments were then shared with each staff section. As a result, the battalion staff adjusted its battle rhythm, improved the products they provided to the companies, or improved the procedures and communications systems they employed. Besides providing the battalion staff sections with the useful ideas of the company commanders, the feedback also gave the commanders a sense that the battalion staff truly aimed to support their efforts to meet the battalion commander's intent.

Second Approach

In March 2011, Task Force Gridley leaders attended the first monthly task force officer professional development sessions. Briefing from Forward Operating Base Fenty in Nangarhar Province and from Task Force Gridley headquarters at Forward Operating Base Sharana in Paktika Province, the two vertical engineer company commanders shared (through video teleconference) their lessons learned with many of the officers in the task force. For all the staff officers, but especially those from nonengineer branches who had never led construction efforts, this briefing illuminated the complexity of the engineer fight. It allowed the staff to see how critical logistics, intelligence, and communications were for supporting engineer operations.

Follow-on officer professional development sessions were usually presented by two or more officers working collaboratively. Held on the last Saturday morning of the month—unless missions necessitated a change—the sessions allowed the company commanders, platoon leaders, and members of the battalion staff to share some form of the lessons learned. These gatherings also presented an excellent opportunity to consider the insights of neighboring engineer elements. For example, the 243d Construction Management Team, which worked closely with Task Force Gridley throughout the deployment, sent an officer to detail the tactics, techniques, and procedures that her unit employed to complete its mission. Her presentation enabled the operations section construction team, the supply section logistics cell, and officers from the construction companies to understand more clearly how to synchronize the efforts of the construction management team and the task force.

About midway through the deployment, the role of the task force significantly evolved and forced the staff to modify its procedures. As part of an organizational shift to "multi-role battalions" at Task Force Hammer in May, the 1249th Engineer Battalion transferred mission command of its most remote vertical and horizontal engineer companies to the 54th Engineer Battalion from Task Force Dolch. The following month, two route clearance companies operating nearby became task-organized under Task Force Gridley. At the end of June, Task Force Hammer was replaced by the 18th Engineer Brigade—Task Force Sword—which soon introduced a new campaign focus, changed the battle rhythm, and instituted its own reporting procedures. A month or so after these changes occurred would have been a good time to ask company commanders for another round of feedback on the effectiveness of the Task Force Gridley staff. However, the accelerated operations tempo due to organizational changes and the summer fighting season caused the opportunity to be overlooked.

Third Approach

The third approach that Task Force Gridley employed in its officer professional development required each of the staff officers to share internal, anonymous after action reviews of their colleagues' job performance. The battalion executive officer, all staff section chiefs, the chaplain, physicians' assistants, and the commander of Headquarters and Headquarters Company prepared brief, written assessments of each other's traits and actions during the deployment. Most officers required only 1 or 2 hours to write their assessments. The comments were reviewed, sorted, and then distributed to the assessed officers. Each staff officer, therefore, received several anonymous sheets with candid feedback that listed 20 to 30 "sustain" and "improve" comments and reflected the perspectives of people they interacted with daily. Patterns, such as repeated observations that an officer should continue with proactive behavior or should brief more succinctly, provided concrete suggestions to maintain or build staff strengths.

". . .coordinating the completion of essential tasks, engineer battalion executive officers can facilitate the professional development of battalion staff officers for improved efficiency during the fight and for their future growth as U.S. Army officers."

Open communication is an element that contributed significantly to the development of the Task Force Gridley staff while deployed. The unvarnished, confidential feedback about battalion staff officers that company commanders provided to the task force executive officer in the first approach enabled him and the staff section chiefs to make useful adjustments early on. The officer professional development sessions in the second approach allowed staff and line company officers to understand that their respective roles complemented each other and that teamwork and communication across the task force made everyone better. Anonymity enabled staff members to provide honest and constructive performance assessments of the executive officer and their own colleagues in the third approach. The officers involved could see that the assessment exercises demonstrated an organizational commitment to improvement. They were less inclined to take it personally when they read suggestions for improvement since they could see that everybody was offering and receiving similar suggestions.

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Marsh Restoration Has Wildlife "Seal of Approval"

By Dr. JoAnne Castagna

As construction workers maneuvered bulldozers and spread sand to restore the degrading marsh island of Yellow Bar Hassock in Jamaica Bay, New York, their work was being closely observed by an area resident—a harbor seal. The seal had been seen lying on the dredge pipeline that delivered the sand and sunning himself as the U.S. Army Corps of Engineers (USACE), New York District, performed its restoration work.

"For the past few months we've seen him on the site. He just keeps doing his thing. I find it so amazing every time we construct one of these island projects how quickly wildlife will use this area," said Ms. Melissa Alvarez, a senior project biologist with USACE.

The team removed mounds of earth and vegetation from low-lying areas of the marsh.

This has been the case with other marsh islands that USACE restored in Jamaica Bay and proved to be the same with the Yellow Bar Hassock project, which was completed during the summer of 2012. Yellow Bar Hassock is part of a marsh island complex located in the 26-square-mile Jamaica Bay Park and Wildlife Refuge that was the country's first national urban park and one of the Gateway National Recreation Areas. The refuge is in an urban area that includes portions of Brooklyn, Queens, and Nassau Counties, New York. The area's shorelines are bordered by heavily developed lands, including John F. Kennedy International Airport, the Belt Parkway, and several landfills.

Over the past century, the Jamaica Bay marsh islands have been disappearing at a rapid rate. Since 1924, nearly 80 percent of the islands have disappeared. They are disappearing at a rate of approximately 44 acres per year and even more quickly in the last decade. It's believed that a great deal of this degradation is due to regional urbanization. If something is not done to stop this loss, it's estimated that the marsh islands could vanish by 2025, leaving wildlife homeless and threatening the bay's shoreline. According to Ms. Alvarez, maintaining the health of the marsh islands is critical to the well-being of wildlife and the 20 million people who live and work in this urban region. The marsh islands are home for a variety of wildlife, including fish and shellfish that are an important food source for birds. The islands also help improve water quality by

The low marsh areas were seeded with smooth cordgrass, which acts as a natural anchor for marsh sediment and can tolerate salt and low tides.

removing substances such as nitrogen and phosphates and serve as flood protection and shoreline erosion control for the bay's surrounding homes and businesses. They dissipate wave energy, minimize storm surge, and reduce flood risk. For the public, this means less erosion to personal property, more species available for recreational fishing, better water quality, and the preservation of the Gateway National Recreation Area that is visited by millions of people each year.

For the past decade, USACE and partner agencies have restored 180 acres of marsh in Jamaica Bay, including Elders East and Elders West marsh islands and Gerritsen Creek. USACE is working with the Port Authority of New York and New Jersey, the National Park Service (Gateway), the New York City Department of Environmental Protection, the New York State Department of Environmental Conservation, the National Resources Conservation Service, and the New York/New Jersey Harbor Estuary Program.

Construction workers maneuver bulldozers and spread sand to restore the degrading marsh island of Yellow Bar Hassock in Jamaica Bay.

To restore Yellow Bar Hassock marsh island, 375,000 cubic yards of dredged sand were pumped onto the island and shaped to simulate the proper elevations of a marsh island. This work added an additional 42 acres to the degraded island, restoring it to a 156-acre habitat. The sand placed on the island was dredged from the Ambrose Channel, part of the USACE New York/New Jersey Harbor Deepening Project. In the past, this sand would have been dumped into the ocean, so this program is a win-win for the environment and taxpayers.

The restoration team then planted seed on nearly 30 acres of marsh, using seed collected from within Jamaica Bay. The low marsh areas were seeded with smooth cordgrass, which acts as a natural anchor for marsh sediment and can tolerate salt and low tides. In the high elevations of the marsh, they planted more than 100,000 2-inch plugs of saltmarsh meadow grass and spike grass. These plants (also collected within Jamaica Bay) are less tolerant of salt but endure the salt water during high tides.

Before the sand was placed, the team removed 11,000 hummocks (mounds of earth and vegetation) from low-lying areas of the marsh island. The team stored them in fenced-off areas on the project site and transplanted them onto the new areas of higher elevation after the sand was placed. Hummocks are natural anchors for marsh sediment because they are part of the historic marsh that has already matured and fills in to stabilize the island.

Yellow Bar Hassock has already begun to look good. Horseshoe crabs have been spotted laying eggs on the island, which just a year ago wasn't suitable for them because it was a barren mudflat. The old adage of "Build it, and they will come" suits Jamaica Bay's islands—especially Yellow Bar Hassock—very well.

Dr. Castagna is a public affairs specialist for USACE, New York District. She can be reached at <joanne.castagna @usace.army.mil>. Follow her on Twitter at <http://twitter.com /writer4usacenyc>.

By Second Lieutenant Brian T. McCormick

The officers and senior noncommissioned officers of the 11th Engineer Battalion "Jungle Cats," based at Fort Benning, Georgia, renewed their commitment to professional development with a visit to Vicksburg, Mississippi, from 25 to 28 April 2012. The group visited numerous locations, including the U.S. Army Corps of Engineers (USACE) Engineer Research Development Center (ERDC); the 412th Engineer Command; the USACE, Vicksburg District headquarters; and the Vicksburg National Military Park. Throughout the 4-day journey, there was time to network with engineering professionals, discover opportunities for career growth, and interact casually with fellow battalion leaders.

On the first day in Vicksburg, the Jungle Cats toured ERDC, the most expansive USACE research laboratory. The four areas of focus at the Vicksburg laboratories include—

- Coastal and hydraulics engineering.
- Environmental engineering.
- Geotechnical and structures engineering.
- Information technology engineering.

Feedback about this part of the staff ride was markedly positive. The assistant battalion communications officer said, "I particularly enjoyed the information technology laboratory and walking through the rows upon rows of processors that were part of the supercomputer. This part of the visit was nostalgic because it reminded me of an internship I participated in during my time at the U.S. Military Academy."

The group was impressed by the vast array of technical knowledge and experience presented at ERDC, but was particularly receptive to the USACE Reachback Operations Center (UROC). For engineers in an operational environment, UROC helps bridge the gap between leaders at the tactical level and subject matter experts at ERDC, who can provide expedient solutions to real-world problems. In an army that has frequently deployed to support Operations Enduring Freedom, Iraqi Freedom, and New Dawn, UROC gives engineers a powerful tool throughout all phases of unified land operations. Like many members of the Engineer Regiment, 11th Engineer Battalion leaders have used UROC expertise via TeleEngineering Toolkits during numerous combat deployments since the War on Terrorism began.

Right: A USACE representative tells visitors from the 11th Engineer Battalion how mats used in soil and airfield projects are tested.

Left: A guide uses a video to explain possible configurations of the modular protective system that gives Soldiers enhanced force protection.

Visits to the 412th Engineer Command and the Vicksburg District headquarters were highlights of the second day of the staff ride. Soldiers and leaders of the 412th Engineer Command manage all Reserve Component engineer units east of the Mississippi River, with an emphasis on mission command nodes. This part of the staff ride gave Jungle Cat leaders a view of the Engineer Regiment that is sometimes misunderstood by Regular Army Soldiers. Later in the day, a member of the battalion forward support company presented an in-depth view of the Civil War siege of Vicksburg from a logistician's perspective. Presentations by members of all battalion companies gave Jungle Cat leaders knowledge that would be critical for the next day's battlefield tour.

The final day of the staff ride consisted of a tour of the Vicksburg National Military Park led by a member of the National Parks Service. Traveling across the site by bus, the group learned about the struggles of Union and Confederate Soldiers during the battle for the city in the summer of 1863. Soldiers on both sides fought and died in the humid climate amid disease and violence. As the bus pulled away from Vicksburg, the 11th Engineer Battalion leaders returned to work with a greater appreciation for the profession of arms and a renewed dedication to leading today's engineer Soldier.

Second Lieutenant McCormick is a vertical construction platoon leader in the 11th Engineer Battalion at Fort Benning, Georgia.

Combined Arms Breaching in the Decisive Action Training Environment: Welcome Back to the Dance Floor

By Lieutenant Colonel Jason A. Kirk and Captain Clint W. Brown

A mission sometimes viewed as an "orchestrated ballet of farm implements" is challenging to conduct and worthy of discussion by Army professionals.[1] During the Army's most recent conventional forced-entry operations in Iraq in 1991 and again in 2003, obstacles stood in the way of ground combat forces. Combat engineer forces enabled maneuver forward in both of these conflicts. Keeping this history in mind while predicting future threats, the Army has introduced a new Decisive Action Training Environment (DATE) that challenges units with an enemy that is equipped, trained, and willing to use a variety of obstacles to deny them freedom of action. The threat facing U.S. units in the DATE will require a combined arms team that is prepared to apply lessons learned to counter improvised explosive devices and the conventional complex mine, wire, and earthen berm obstacles employed by adversaries in 1991 and 2003. Descriptions of the hybrid threat that rotational units will face during decisive action rotations at the National Training Center (NTC) at Fort Irwin, California, can be found in the "DATE Version 2.0" handbook published by the U.S. Army Training and Doctrine Command (TRADOC).[2] This article reports on combined arms breaching observations and training recommendations from the first DATE rotation conducted at NTC in March 2012 with a new "farm implement" at the dance—the Army's newly fielded assault breacher vehicle (ABV).

Observations from NTC rotations indicate that success at the breach still requires the Army's doctrinal breaching tenets—

- Intelligence.
- Breaching fundamentals.
  - Suppress.
  - Obscure.
  - Secure.
  - Reduce.
  - Assault.
- Organization.
- Mass.
- Synchronization.[3]

Engineer formations are understandably out of practice at this particular dance. The biggest shortfall observed in the conduct of combined arms breaching is a lack of company level engineers integrating into and influencing the military decisionmaking process (MDMP) of their supported combined arms battalion. Officers are too often hesitant to recommend the introduction of breaching fundamentals into the course of action. The result is that engineer breaching assets are not in position to rapidly exploit at the point of

penetration and help the combined arms battalion maintain momentum through the breach.

The ABV is built on an M1 Abrams tank chassis and includes a turbine engine that enables it to keep up with the maneuver forces it is designed to support. The platform has two linear demolition charges (LDCs) mounted on the rear of the vehicle turret. The LDC is a mine-clearing line charge (MICLIC) with a new name, but has a Kevlar® cover, has an automatic ejection system to speed reloads and safely react to hazardous malfunctions, and is much more stable on the move than a trailer-mounted system. The modified table of organization and equipment (MTOE) for an engineer company in a heavy brigade combat team consists of three combat engineer platoons and an equipment platoon. The equipment platoon includes six ABVs in two assault sections. The resulting 12 LDCs provide more breaching capability than the four trailer-mounted MICLICs formerly authorized. The base MTOE also includes two full-width mine plows and a combat dozer blade for each platoon. With that equipment, each platoon would be able to breach a combined obstacle up to 522 meters deep, quite an improvement over the 174 meters of clearance available to a platoon with two trailer-mounted MICLICs. The ABV is also equipped with an automatic lane-marking system. By design, a single ABV can reduce an obstacle with its LDC, proof a lane with its mine plow, and mark lanes while the other ABVs provide redundancy and alternatives for the combat formation.

As engineer leaders work through the MDMP, they may find that instead of placing three ABVs with the two assault squads of the equipment platoon, they might place two ABVs in each of the three platoons. While reducing some mass, this task organization offers additional breaching options across the maneuver force. It is premature in the fielding cycle to call for an MTOE change, but the equal allocation of three mine plows/dozer blades per platoon may bear consideration. The balanced allocation of mine plows and dozer blades would allow mine plow/dozer blade teams to be incorporated into each of the three platoons, with redundancy available from the maneuver task force tank plows. Successive engineer and combined arms training will increase the unit understanding of capabilities and unit confidence in employing this equipment to support combined arms breaching.

"A mission sometimes viewed as an 'orchestrated ballet of farm implements' is challenging to conduct and worthy of discussion by Army professionals."

The ABV is equipped with a blade that can reduce man-made obstacles such as log cribs and move debris that was emplaced to slow down maneuver forces. Teamed with an armored combat earthmover (ACE), it can be used to reduce enemy antitank ditches. The ABV dozer blade is not well-suited for filling in antitank ditches, but its power makes it very effective in reducing the berm on the enemy side of the ditch. The ACE doesn't have the power to quickly reduce the berm on the enemy side of the ditch, but it can easily fill in the ditch to create a ramp so that the ABV can reach the

The ACE is an effective piece of equipment when used in tandem with the ABV.

Left: An ABV clears a lane for the armored task force to maneuver to the objective.

Right: The ABV gives engineer and task force commanders the ability to configure breach assets in new ways.

berm. At the NTC, an engineer company making multiple breaches through antitank ditches achieved its quickest times using the ABV and ACE in tandem. Units at home station should incorporate antitank ditch reduction training to reflect the nature of complex obstacles commonly emplaced by the DATE near-peer conventional adversary.

It is worth noting that bridging assets in the form of armored vehicle-launched bridges were once organic to brigade combat team engineers and integral to the reduction of antitank ditches and berms. Since current MTOEs do not provide this gap-crossing capability within brigade combat teams, it is critical that planners request these assets from maneuver enhancement brigade formations, find a bypass to the gap-crossing obstacle, and practice the ABV/ACE drill described here.

The ABV is equipped with the same automatic lane-marking system used by Stryker vehicles. The system provides entrance, left-hand rail, and exit markers during initial lane marking. To take full advantage of the system, units must develop and implement standard marking tactics, techniques, and procedures and capture them as unit standing operating procedures. Without clear standards, units can expect inconsistent initial lane-marking signatures from engineer platoons during various missions across the brigade area of operations and the likelihood of increased casualties resulting from the confusion. The ABV lane marker cannot effectively mark the final approach or the entrance funnel. This step requires planning by the engineer platoon leader to establish the initial lane with a combination of the ABV and dismounted Sappers. To be effective, marking drills must be understood by the maneuver task forces and follow-on sustainment formations.

At the NTC, the lane-marking system proved moderately effective in marking the left-hand rail. During plowing operations, the soil was loose enough to allow the emplacement of lane markers, but the left-hand rail became obscured by dust or knocked over by vehicles as follow-on forces moved through the breach site. As a result, some vehicles moved outside the lane and into unproofed sections of the obstacle. Only when units augment the left-hand rail of the

lane-marking system with orange traffic cones are follow-on forces likely to stick to the lane. The task force and the engineers must rehearse lane marking under day and night conditions. To educate subordinates before executing a combined arms breach mission, engineers should consider setting up a static display of their marking method in an area (such as the tactical assembly area entrance control point) where the task force will maneuver often. (FM 3-34.2 provides standards for lane and bypass marking.[4]) The proverbial "long pole in the tent" of combined arms breach success is the effectiveness of the lane-marking signature in helping the initial assault force and follow-on combat forces move forward to the farside objectives. Rehearsals and the use of a common lane-marking standard are critical enablers of this success.

The absence of a capable engineer representative (the engineer company commander or a platoon leader) during MDMP and rehearsals presents a major shortfall during the planning of combined arms breaching operations. The engineer representative must ensure that the MDMP includes formal reverse breach planning. Key tasks within reverse breach planning are to—

- Identify available reduction assets.
- Predict the placement of enemy obstacles.
- Understand the scheme of movement and maneuver.
- Identify the number of required breach lanes.
- Identify assets required to reduce, proof, and mark lanes.
- Task-organize reduction assets within the maneuver force.

Breaching operations also commonly suffer from a lack of deliberate, combined arms rehearsals incorporating the engineer leadership. The detailed discussion of breach execution is critical during rehearsals at all echelons, from task force level, combined arms rehearsals to company and platoon premission radio rehearsals.

"The rehearsal is one of the most effective synchronization tools available to commanders."[5] Performed correctly, a rehearsal allows the support force, breach force (security and engineer reduction elements), and assault force to visualize their actions in time and space and helps the task force commander identify decision points related to the successive commitment decision of the breach force and the assault force. When the reverse breach planning and rehearsals achieve synchronization, the ABV-enabled engineers will be properly positioned with redundant assets and clear commitment criteria, leading to more successful execution on the dance floor.

In conclusion, while the ABV will provide the Army with a greater capability to conduct combined arms breaching, it does not diminish the importance of applying doctrinal fundamentals in the form of breaching tenets when planning, preparing, and executing them. The ABV reduces cross-country maneuver time to the point of penetration, decreases the number of vehicles and personnel exposed to direct fire at the point of penetration, and cuts the time to reduce an antitank ditch. To fully realize the advantages of this new breaching asset, task force engineers must be fully integrated into the MDMP and maneuver units must devote particular attention to actions at the breach during rehearsals. The dance floors in our Army's future will surely include the challenges of obstacles. Now enabled with the ABV and renewed attention to the age-old lessons in doctrine, our combined arms force will be well situated to succeed in helping maneuver forces to "seize and exploit the initiative."[6]

Endnotes:

[1]Harry Greene, "The Grizzly and the Wolverine: Alternatives to an Orchestrated Ballet of Farm Implements," *Engineer Bulletin*, August 1996, <http://www.fas.org/man/dod-101/sys/land/docs/960800-greene2.htm>, accessed on 16 August 2012.

[2]U.S. Army Training and Doctrine Command, TRADOC Intelligence Support Activity–Threats, "Decisive Action Training Environment," December 2011, <https://www.us.army.mil/suite/doc/34949475>, accessed on 16 August 2012.

[3]Field Manual (FM) 3-34.22, *Engineer Operations—Brigade Combat Team and Below* (Appendix C, Combined Arms Breaching Operations), 11 February 2009, accessed on 16 August 2012.

[4]Army Tactics, Techniques, and Procedures 3-90.4, *Combined Arms Mobility Operations*, 10 August 2011.

[5]FM 3-34.22.

[6]Army Doctrine Publication 3-0, *Unified Land Operations*, 10 October 2011.

Lieutenant Colonel Kirk is the senior maneuver support observer coach/trainer at NTC. Previously, he commanded the U.S. Army Corps of Engineers, Charleston District, and served two combat tours in Iraq. He is a graduate of the Engineer Officer Advanced Course, the U.S. Army Combined Arms and Services Staff School, and the U.S. Army Command and General Staff College. He holds a bachelor's degree in environmental engineering from the U.S. Military Academy, a master's of science degree in engineering management from Missouri University of Science and Technology, and a master's degree in environmental engineering from the University of Florida.

Captain Brown is an observer/controller at NTC. Previously he served as an aide-de-camp at the Joint Improvised Explosive Device Defeat Organization in Washington, D.C., and commander of the 541st Engineer Company, Bamberg, Germany. He is a graduate of the Engineer Basic Officer Leader Course, the Engineer Captains Career Course, and the Joint Engineer Operations Course. He holds a bachelor's degree in philosophy from Georgia Southern University and a master's degree in public policy administration from Webster University.

Afghan Partnership at the Company Level—Lessons Learned from an Embedded Training Team

By Captain Jeffrey D. Nichols, First Lieutenant Daniel B. Powell, and Sergeant Anthony L. Bollin

Background

The 515th Engineer Company deployed to support Operation Enduring Freedom in late February 2011. Within weeks of arriving at Forward Operating Base (FOB) Ghazni, the 515th was partnered with the Route Clearance Company (RCC), 3d Brigade, 203d Corps, Afghan National Army (ANA), which arrived at nearby FOB Vulcan straight from its validation training in Kabul. Because of poor communication among the RCC's American trainers in Kabul, its ANA higher headquarters, and the Polish military operational environment owner, FOB Vulcan was not adequately prepared to receive the RCC. The colocated ANA higher headquarters was not ready to provide housing, heat, or power, which caused problems when temperatures dropped below freezing at night.

By mid-June 2011, the RCC was settled into FOB Vulcan; and the 515th placed an embedded training team (ETT) of four Soldiers there who were dedicated to developing the RCC into an independent unit. The ETT observed the capabilities of the RCC, assessed training required to conduct independent route clearance missions, and developed a plan of action for the remainder of the deployment. The ETT monitored the RCC as it conducted training led by its leaders and executed route clearance missions led by U.S. route clearance patrols from the 515th and the 572d Mobility Augmentation Company. During these partnered missions, the Afghans integrated their vehicles into the American order of march—when the Americans pushed out dismounts, the Afghans dismounted with them. These partnered missions let the RCC observe properly executed route clearance operations and let the ETT assess what the RCC needed to improve before operating independently.

In early September 2011, the ETT completed its assessment and began to prepare the RCC for independent operations. By the time the 515th redeployed in early March 2012,

the RCC had conducted 40 independent route clearance missions with an 80 percent find rate. After 7 months of daily partnership with the RCC, the 515th Engineer Company ETT concluded that small, motivated teams conducting daily interaction with their Afghan counterparts are the key to the successful preparation of Afghan forces for independent operations. The following is a discussion of their methods to accomplish this end state and the lessons learned.

Logistical and Garrison Operations

With inadequate support from its higher headquarters, the RCC struggled to get food, water, and fuel for missions; repair parts and lubricants for vehicles; and heaters and firewood during cold weather. Typically, the RCC could field only one of its three platoons because so few of their vehicles were mission-capable. The 515th instituted a policy that allowed the unit to provide the RCC with mission-critical resources, but only after the Afghans had made every effort to obtain them through proper channels and failed.

In addition to inadequate supplies of repair parts and lubricants for vehicle maintenance, the ETT encountered a lack of regular preventive maintenance checks and services. To underscore the importance of vehicle maintenance, ETT and RCC leaders agreed to appoint an Afghan motor sergeant and several mechanics and to establish a weekly command maintenance day. The RCC motor sergeant and mechanics spent 4 days a week at the headquarters workshop, which allowed them to get hands-on maintenance experience and training. On command maintenance days, they reported to the RCC area to supervise maintenance—half of the day was devoted to vehicle maintenance, and the other half was devoted to weapons maintenance and cleaning.

Lax soldier discipline was a major challenge faced by ETT and RCC leaders. The officers were well trained and educated, but they received little support from their noncommissioned officers (NCOs). The lack of experience and professional development among the NCOs hindered their ability to enforce standards. As a result, the ETT established a professional development program with RCC NCOs and promoted professional relationships among RCC officers, NCOs, and soldiers.

Training

When the ETT members completed their assessment in September 2011, they listed the training that the RCC would need to execute missions independently. They began by training the RCC on individual tasks, such as crew-served weapons operation, mine detector operation, and first aid. These classes went smoothly, but when training on collective tasks such as convoy operations, dismounted patrol procedures, and react-to-contact drills, progress was more difficult. These more advanced topics brought more questions from the RCC soldiers, overwhelming the interpreters, who had to translate lessons by instructors and questions from students at the same time.

As a result, the ETT adopted a train-the-trainer philosophy to teach the more complex and collective tasks. These training events were called *soda sessions* and were held about twice a month. RCC officers and platoon sergeants gathered in a classroom without soldiers, which minimized distractions. The ETT provided sodas, energy drinks, and snacks, which were treats that the RCC leaders rarely enjoyed. The Afghans routinely offered tea, flat bread, and other Afghan foods to the ETT, so the soda sessions offered a way for the ETT members to return the favor and encourage attendance.

In this classroom format, ETT instructors taught complex topics such as battle drills or ways to improve command climate. The instructors helped the RCC leaders develop standing operating procedures, which helped them train their own soldiers. This empowered the RCC leaders by making them look knowledgeable to their soldiers. In addition to the extremely successful soda sessions, the ETT found that another useful training tool was to award RCC soldiers with certificates when they completed specialty training. The certificates were relatively easy to produce, were popular with the RCC soldiers (since Afghans in general seem to cherish such documents), and served as training records for the ETT.

A member of the 515th ETT supervises a route clearance company gunner during a range fire.

Mission Preparation

After conducting several route clearance missions alongside U.S. Soldiers and training to correct observed flaws, the RCC was ready to operate independently by mid-September 2011. They were soon in high demand to conduct direct support route clearance missions and named operations, freeing the U.S. route clearance patrols to fulfill division requirements. The ETT introduced changes to improve the mission notification process. Theoretically, the Polish military operational environment owner would notify the RCC higher headquarters at 3d Brigade, 203d Corps, ANA, which would alert the RCC of the upcoming mission. However, this process often left the RCC with insufficient time to prepare. Instead, the ETT received the mission from the requesting unit and then issued it to the RCC, which then notified the ANA headquarters. This was not the ideal process, but it maximized the time that the RCC had to prepare for missions.

At first, the RCC conducted virtually no mission preparation, but the ETT worked with the platoon sergeants to develop a standard load plan for every vehicle on each mission. This planning was reinforced through mission briefs the day before each mission and through precombat checks and inspections on the day of each mission. The ETT directly supervised and enforced these preparations, but the Afghan NCOs eventually took the lead and the ETT merely supervised.

On the day before each mission, platoon leaders briefed the company commander on the mission plans, which improved their briefing skills and allowed the commander to critique the plans. The platoon leaders were accompanied by their platoon sergeants, who briefed the commander on their mission preparations. By encouraging collaboration between the platoon leaders and platoon sergeants, the ETT helped strengthen the relationships between the RCC officers and their NCO counterparts.

Mission Execution

On the day of each platoon mission, the platoon sergeant conducted precombat checks and inspections and then the platoon leader briefed the platoon on the mission plan. To promote an effective linkup with the supported unit, the ETT ensured that the RCC was at the linkup site 15 minutes early in the event of any unforeseen problems. Most supported units would have preferred to deal with the ETT, but the Americans thought it was important for the Afghan leaders to present their own mission plans. After linkup, the RCC would lead the convoy, followed by the ETT vehicle in the middle and the supported unit in the rear. Their position allowed the ETT members to observe the RCC and maximize communication with the supported unit. Whenever RCC teams dismounted, the ETT sent a member to monitor each team and make on-the-spot corrections. The corrections were addressed to the dismount team leaders rather than the soldiers, helping the RCC leaders to identify and correct problems and teach their soldiers to become more responsive.

After each mission, the ETT tried to conduct after action reviews with platoon leaders and platoon sergeants, rather than the entire platoon. They also found that the reviews were more productive when the company commander and first sergeant were present, making those leaders aware of

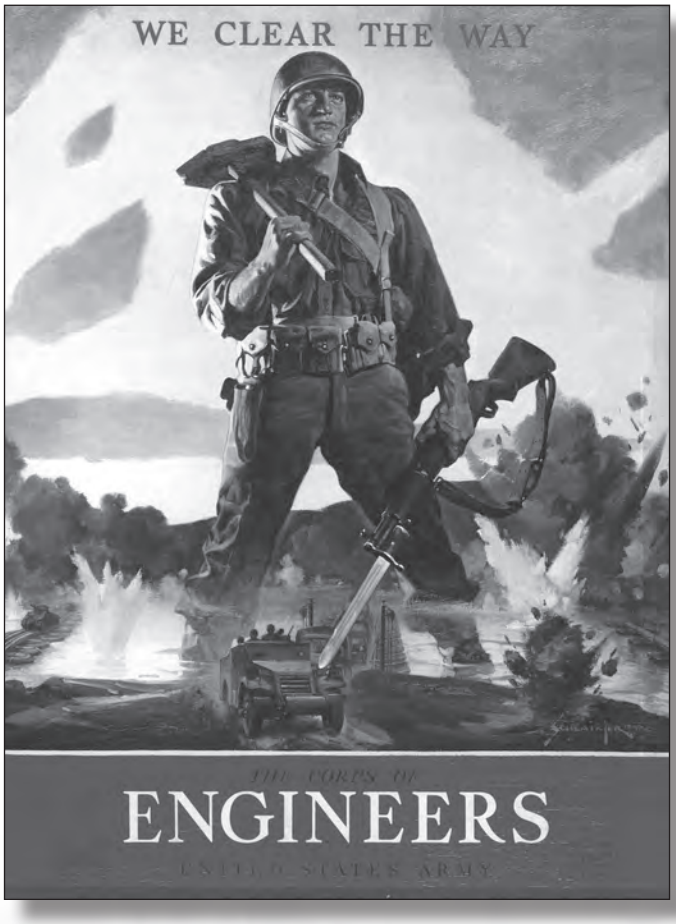
(Continued on page 41)

A member of the 515th ETT grades route clearance company soldiers while they negotiate a mine detector operation lane.

An Exemplary Engineer Soldier

By Mr. Gustav J. Person

Engineer students and staff at Fort Leonard Wood, Missouri, are usually struck by the large World War II recruiting poster on display in the atrium of the U.S. Army Engineer School. The poster features a youthful engineer Soldier carrying a large sledgehammer and an M-1 Garand rifle. In this famous painting by Jes Schlaikjer, the Soldier's sharp blue eyes look into the distance as bombs explode around his feet. The artwork is complemented by the motto "We Clear the Way."



This historical painting was rendered in 1942 by famed war poster artist Jes W. Schlaikjer.

The model for this 1942 poster was Sergeant Vincent G. Leckey, a 19-year-old engineer Soldier, based at Fort Belvoir, Virginia, who traveled to the Pentagon on four occasions to pose for the artist. He seemed the perfect model for this poster. At 6 feet 1 inch tall and weighing 240 pounds, he was known for his strong handshake and clamp-like hands.

Sergeant Leckey won many honors during and after the war. He won the Army title of "Ideal American Soldier," and his likeness was displayed in New York City's Grand Central Station on a 35-foot mural. In 1948, he was selected as Fort Belvoir's G.I. Joe of the Month; and in 1953, he was honored as the best all-around Soldier in Alaska while serving at Fort Richardson. He received the Presidential Unit Citation for his more than 33 months of service in the Pacific Theater of Operations during World War II, where he participated in four amphibious landings. He was also the 52d recipient of the Silver De Fleury Medal. This medal is awarded to engineers who possess values of boldness and courage, and George Washington was one of the first to receive it.

Sergeant Leckey left his mark on the U.S. Army Engineer School at Fort Belvoir. He helped to build the Tompkins Basin and the Fairfax Chapel, which still stands on 21st Street. He also spent the latter part of his career as an instructor at the Engineer School there. In 1963, he retired as a master sergeant after 23 years of Army service and remained a resident in the local community around Fort Belvoir. He died on 15 December 2006 at age 84 and was interred at Arlington National Cemetery.

(Information for this article was gained through an article by Melina Rodriguez which appeared in the *Belvoir Eagle* on 11 January 2007.[1])

Endnote:

[1]Melina Rodriguez, "Model for 1942 Engineers poster dies at 84," *Fort Belvoir Eagle*, <http://www2.belvoireagle.com/news/2007/jan/11/model_for_1942_engineers_poster_dies_at_84-ar-1520925/>, accessed on 7 July 2012.

Mr. Person is the installation historian at Fort Belvoir, Virginia. He holds bachelor's and master's degrees in history from Queens College in New York City.

ENGINEER DOCTRINE UPDATE

U.S. Army Maneuver Support Center of Excellence
Capabilities Development and Integration Directorate
Concepts, Organizations, and Doctrine Development Division

Publication Number	Title	Date	Description (and Current Status)
Publication Revisions			
FM 3-34	*Engineer Operations*	Aug 11	This engineer manual contains the "box top" as our doctrinal framework; integrates the three engineer disciplines of combat, general, and geospatial engineering; and introduces the four lines of engineer support for decisive actions. **Status:** Final approved draft due 3d quarter, fiscal year (FY) 2013.
ATP 3-34.22	*Engineer Operations–Brigade Combat Team and Below*	Feb 09	This revision is pending Headquarters, Department of the Army, approval of the brigade engineer battalion. **Status:** To be published 2d quarter, FY 13.
ATP 3-34.23 (ATTP 3-34.23)	*Engineer Operations–Echelons Above Brigade Combat Team*	Jul 10	This manual will undergo review and update as required. **Status**: To be published 3d quarter, FY 13.
ATP 3-90.61 (FM 3-90.61)	*Brigade Special Troops Battalion*	Dec 06	This manual will undergo review and update as required. **Status:** To be published 3d quarter, FY 14.
Combat Engineering			
ATP 3-34.20 (FM 3-34.210)	*Explosive Hazard Operations*	Mar 07	This will be a multi-Service, full revision of Field Manual (FM) 3-34.210, *Explosive Hazards Operations*. **Status:** To be published 3d quarter, FY 13.
ATP 3-37.34 (FM 5-103)	*Survivability Operations*	Jun 85	This will be a full revision of FM 5-103, *Survivability*. **Status:** To be published 1st quarter, FY 13.
ATP 3-90.4 (ATTP 3-90.4)	*Combined Arms Mobility Operations*	Aug 11	**Status:** Anticipate a change document to convert the manual from Army Tactics, Techniques, and Procedures (ATTP) 3-90.4 to Army Techniques Publication (ATP) 3-90.4 1st quarter, FY 13.
ATP 3-90.8 (FM 3-90) (FM 5-102) (FM 90-7)	*Combined Arms Countermobility Operations*	Jul 01 Mar 85 Sep 94	This will be a full revision that includes the consolidation of FM 3-90, *Tactics;* FM 5-102, *Countermobility*; and FM 90-7, *Combined Arms Obstacle Integration*. This will be a multi-Service manual that discusses countermobility and combined arms obstacle integration and their relationship to the combined arms defense and warfighting functions with regard to wide area security. **Status:** To be published 3d quarter, FY 13.
ATP 3-90.37 (FM 3-90.119)	*Combined Arms Improvised Explosive Device Defeat Operations*	Sep 07	This will be a multi-Service, full revision of FM 3-90.119, *Combined Arms Improvised Explosive Device Defeat Operations*. **Status:** To be published 2d quarter, FY 14.

ENGINEER DOCTRINE UPDATE

U.S. Army Maneuver Support Center of Excellence
Capabilities Development and Integration Directorate
Concepts, Organizations, and Doctrine Development Division

Publication Number	Title	Date	Description (and Current Status)
General Engineering			
ATP 3-34.5 (FM 3-100.4)	*Environmental Considerations*	Feb 10	This manual will undergo review and update as required. **Status:** To be published 3d quarter, FY 13.
ATP 3-34.40 (FM 3-34.400)	*General Engineering*	Dec 08	This manual will undergo review and update as required. **Status:** To be published 4th quarter, FY 13.
ATP 3-34.45 (FM 3-34.480)	*Power Generation/ Distribution*	Apr 07	This manual will undergo review; renaming from FM 3-34.480, *Engineer Prime Power Operations*; and update as required. **Status:** To be published 3d quarter, FY 14.
ATP 3-34.81 (FM 3-34.170)	*Engineer Reconnaissance*	Mar 08	This manual will undergo review and update as required. **Status:** To be published 2d quarter, FY 14.
ATP 3-37.10	*Base Camps*	New	This will be a multi-Service manual. It will be targeted for all branches (not an engineer manual solely for the use of engineers). It is a compilation of TTP found in doctrine, lessons learned, and reference material that provides an integrated systematic approach to base camps. **Status:** To be published 1st quarter, FY 13.
Geospatial Engineering			
ATP 3-34.80 (FM 3-34.230)	*Geospatial Engineering*	Mar 08	This manual will undergo review and update as required. **Status:** To be published 1st quarter, FY 14.

Notes:

1. Current engineer publications can be downloaded from the Army Publishing Directorate Web site at <http://www.apd.army.mil>. The manuals discussed in this article are currently under development and/or recently published. Drafts may be obtained during the staffing process by contacting the Engineer Doctrine Branch at commercial (573) 563-0003, DSN 676-0003, or <usarmy.leonardwood.mscoe.mbx .cdidcodddengdoc@mail.mil>. The development status of these manuals was current as of 1 October 2012.

2. Items in parentheses are publication numbers of current publications, which will be superseded by the new number at the top of the entry. Multiple numbers in parentheses indicate consolidation into one manual.

Currently, 28 of 29 Army doctrine publications/Army doctrine reference publications have been published. Every Army professional should have a basic knowledge of our fundamental principles since they rarely change quickly. They can be downloaded from the Army Publishing Directorate (APD) Web site at <http://www.apd.army.mil>.

Dedication

The following members of the Engineer Regiment have been lost in overseas contingency operations since the last issue of *Engineer*. We dedicate this issue to them.

Private First Class Jose O. Belmontes	630th Engineer Company, 7th Engineer Battalion	Fort Drum, New York
Staff Sergeant Richard L. Berry	Company A, 4th Stryker Brigade Combat Team	Fort Bragg, North Carolina
Sergeant Christopher J. Birdwell	Company A, 4th Brigade Combat Team	Fort Carson, Colorado
Private First Class Julian L. Colvin	Company A, 4th Stryker Brigade Combat Team	Fort Bragg, North Carolina
Sergeant First Class Bobby L. Estle	630th Engineer Company, 7th Engineer Battalion	Fort Drum, New York
Specialist Darrion T. Hicks	42d Clearance Company, 54th Engineer Battalion	Bamberg, Germany
Sergeant Joseph M. Lilly	18th Engineer Company, 3d Stryker Brigade Combat Team	Joint Base Lewis-McChord, Washington
Specialist Kyle B. McClain	1433d Engineer Company, 507th Engineer Battalion	Rochester Hills, Michigan
Staff Sergeant Barrett W. McNabb	562d Engineer Company, 2d Stryker Brigade Combat Team	Joint Base Lewis-McChord, Washington
Specialist Sergio E. Perez	713th Engineer Company, 81st Troop Command	Valparaiso, Indiana
Specialist Trevor A. Pinnick	18th Engineer Company, 3d Stryker Brigade Combat Team	Joint Base Lewis-McChord, Washington
Private First Class Jeffrey L. Rice	584th Engineer Company, 20th Engineer Battalion	Fort Hood, Texas
Specialist Nicholas A. Taylor	713th Engineer Company, 81st Troop Command	Valparaiso, Indiana

Sappers Clear the Way

By Second Lieutenant Luke M. Colson and Second Lieutenant Patrick B. Herold

In late February 2012, the Sappers of the 693d Engineer Company blasted through tons of granite to improve recreational access to Indian Lake on a Fort Drum, New York, training area. This unique mission provided quality training while simultaneously benefiting the community.

The 693d Engineer Company, 7th Engineer Battalion, is a wheeled Sapper unit that is task-organized into two route clearance platoons. The company maintains a unified land operations mission-essential task list that includes the traditional combat engineer roles of providing mobility, countermobility, and survivability support to maneuver units.

In December 2011, the company began seeking a demolitions training mission directly linked to one or more engineer lines of support. This led to a meeting with officials from the garrison range control office and other garrison organizations. The resulting training mission was to "enable logistics" by cutting a road though a section of granite 60 feet long, 12 feet high, and 30 feet wide. In reality, the mission would provide access to a boat ramp at a large fishing lake frequented by anglers from across the North Country. The only road to the ramp included a hairpin turn around a large, flat rock formation. Wetlands on either side of the road prevented increasing the radius of the corner for fear of harming the land. The only way to open the lane for anglers towing boats was to blast the rock, remove it, and continue the road directly through the rock obstacle.

Company leaders aimed to remove the rock through explosive quarrying techniques, yielding an opening with tapered sides 60 feet long, 17 feet wide, and 2 feet below grade. For the sake of training, the Sappers would maintain an expeditionary posture during the mission, performing as though the company were deployed.

Planning

Maneuver commanders expect engineers to breach, clear, or build according to their needs, regardless of the type of engineer unit they are in. With that in mind, company leaders selected a demolition mission with requirements exceeding the unit's organic capabilities. For quarrying, the company had only Composition 4 (C-4) explosive instead of the traditional dynamite and lacked the proper tools to drill and remove rock. The mission would be an appropriate test of the Sappers' ability as engineers to adapt to changing requirements.

As planning began, company leaders discovered that current engineer field manuals (FMs) covering quarry operations, engineer field data, and explosives and demolitions did not have the level of technical detail that quarrying

"Maneuver commanders expect engineers to breach, clear, or build according to their needs, regardless of the type of engineer unit they are in."

novices needed. For example, FM 3-34.465, *Quarry Operations*,[1] contains few details about drilling equipment and techniques. It contains no tables or formulas for charge distribution or how to vary borehole arrays to fit topography.

To compensate, it was necessary to leverage the experience of a senior noncommissioned officer who had prior quarrying experience. Company leaders also contacted officials at the U.S. Army Corps of Engineers, who provided an electronic copy of Engineer Manual 1110-2-3800, *Engineering and Design—Systematic Drilling and Blasting for Surface Excavations*.[2] It was better suited to nonstandard missions (such as rock demolition) using C-4. The publication contains charts, diagrams, tables from which to extrapolate, and a more complete list of subjects related to drilling and blasting rock.

The planning process was iterative. This mission required coordination between the 693d, an equipment rental company, and officials from the garrison range control and fish and wildlife management offices. While the 693d Engineer Company drove each step of the planning process, subjecting the plan to review by each organization helped refine it. Mission success depended on the ability of junior leaders to synthesize input from these garrison organizations. Establishing personal relationships with representatives from those organizations made interactions cooperative rather than confrontational.

Above: View of the rock face before blasting

Right: Indian Lake as viewed from the newly opened access road

Execution

The first step in the mission was to conduct test shots to understand the effects of available demolitions on granite. Sappers experimented with borehole depth, the quantity of explosive per hole, tamping materials, and the number of holes per shot. A summary of the results are as follows:

- ***Test shots.*** Sappers drilled six boreholes 2 feet deep, tamping two with water and two with soil; as a control, two boreholes were not tamped. All of the test holes were successful in breaking

apart the rock and throwing the fragments out of the blast area, but none of the tamped holes outperformed the untamped boreholes. As a result, future shots were left untamped for simplicity.

- ***40-pound shaped and cratering charges.*** After borehole test shots, experiments were conducted with surface-laid shaped and cratering charges to determine the effects of military demolitions on terrain (an individual supporting task to the company mission-essential task list). Not surprisingly, the results were unfavorable. The shaped charge was too weak to penetrate granite as effectively as it does soil. Instead, it created a small hole approximately 6 inches deep and 18 inches in radius. Surface-laid cratering charges were similarly ineffective, crushing some rock at the surface, but providing no significant push of rock away from the face.
- ***Drill operations.*** The Sappers used two-man, portable drills rented from a local equipment store with range control funds. Each drill came equipped with interchangeable 3-foot, 4-foot, and 6-foot steel extensions along with their respective drill bits. Drilling into solid granite with portable drills was tedious and labor-intensive, so the Sappers were unable to execute more than two blasts per day. Packing drilled boreholes with explosives was far more effective than surface-laid charges, but the slow work rate was a limiting factor.
- ***Drilled hole depths.*** Initially, all boreholes were designed to be drilled 6 feet deep and packed 4 feet deep with C-4. This was inefficient because it took too long to drill that deep, it was difficult to pack explosives to that depth, and the C-4 cut through the rock instead of pushing it off the face. As the depth of the drilled boreholes exceeded 3 feet, the effectiveness of the C-4 decreased because it no longer threw small fragments from the blast site. Instead, it left chunks of rock too large to be moved by hand. Holes 2 to 4 feet deep were the most successful.
- ***Earthmoving equipment.*** With no organic earthmoving equipment such as bulldozers or front-end loaders, the 693d Engineer Company relied on raw manpower to remove rubble after each shot before drilling the holes for the next blast. This significantly increased mission duration and Soldier fatigue. Prior planning and cooperation with garrison officials paid dividends. After coming out to the work site to check on progress, range control officials offered the use of their front-end loaders to haul away debris between shots. This equipment substantially increased the rate of debris removal and eliminated the main contributor to fatigue.

Lessons Learned

There were three major lessons learned while conducting this mission:

- Drill shorter boreholes to take advantage of throw, and manage rubble size when quarrying with C-4. Since C-4 does not have the pushing properties of lower-velocity explosives, company engineers found that boreholes no more than 4 feet deep were optimal when blasting granite. This achieved the necessary throw, crushed the rock into manageable chunks, and provided the secondary benefit of fracturing the next section of rock for follow-on charge placement. While dynamite would have been ideal for this mission, it was unavailable. The use of C-4 provided the 693d Sappers a chance to exercise critical thinking skills by extrapolating formulas and tables intended for one type of explosive for use with another.
- Identify the critical path, and resource it well. As expected, drilling boreholes was the most time-consuming task associated with the project. Therefore, it was resourced accordingly, with numerous spare parts to keep the equipment operational. Even with that resourcing, minor work stoppages occurred when the spare parts supply was exhausted. Applying the critical path method to planning and adequately resourcing the most likely critical path focused mission priorities and helped maintain a consistent work rate.
- Develop active working relationships with garrison organizations. Officials at range control and the public works environmental division have many resources to benefit the units they support. Smart leaders foster partnerships and relationships with key individuals in their sphere of influence. In this case, the 693d completed a unique mission that had a lasting impact on the unit and the community. This was much better training than simply placing charges in a mudhole as is done at most demolition ranges. A willingness to conduct mission planning with garrison organizations created a training opportunity whose quality greatly exceeded what could have been created by the company alone.

Endnotes:

[1]FM 3-34.465, *Quarry Operations*, 15 April 2005.

[2]Engineer Manual 1110-2-3800, *Engineering and Design—Systematic Drilling and Blasting for Surface Excavations*, 1 March 1972.

Second Lieutenant Colson is a platoon leader with the 693d Engineer Company. He is a graduate of the University of Hawaii.

Second Lieutenant Herold is also a platoon leader with the 693d Engineer Company. He is a graduate of the U.S. Military Academy.

Partners Pulling Together: Engineers Help Schramberg Recover From Disaster

By Dr. Bianka J. Adams

On 21 May 1959, unusually heavy thunderstorms and torrential downpours flooded Schramberg, a town of about 20,000 people near the city of Freiburg in the Black Forest of southwest Germany. Situated in a picturesque valley, Schramberg stretched along the banks of the Schiltach, a stream fed by three tributaries flowing down from the surrounding hills. The massive rainfalls swelled the river until it burst its banks, turned streets into streams, ripped out trees, and covered the town with an avalanche of mud and debris. Throughout the town's history, the waterway had caused many floods, with the one in 1778 standing out for the damage it had caused to the town, a church, and a nearby castle.[1]

In addition to golf ball-size hail, the deluge flooded more than 500 houses, paralyzed the Junghans clock-making industrial complex (the biggest local business), and injured 23 people. When the rains finally subsided, the town had sustained an estimated 20 million Deutschmarks' worth of damage, roughly equivalent to 37 million in 2012 dollars.[2, 3] Local firefighters, police, and other emergency personnel who rushed to aid the town's citizens were so overwhelmed with the extent of cleanup and restoration operations that the German federal government requested assistance from its American and French allies, who had troops stationed in the vicinity.[4] The U.S. Army 78th Engineer Battalion from Phillips Barracks

A U.S. Army engineer distributes clean water at Schramberg's soccer field.

Right: German workers and Soldiers from the 78th Engineer Battalion clean the streets of Schramberg.

Below: U.S. and German Army engineers rebuild a bridge that was washed away in the flood.

in Karlsruhe and the 168th Engineer Battalion from Nellingen Kaserne near Stuttgart responded together with a unit of French Army engineers. The American and French Soldiers joined *Fallschirmpionierkompanie* (Airborne Pioneer Company) 250 of the newly formed *Bundeswehr* (German Army) to help the town recover from the disaster.[5, 6]

The American engineer battalions had deployed to Germany as part of a revolutionary new system of unit rotation and replacement named Operation Gyroscope.[7] The 78th Engineer Battalion moved to Karlsruhe in 1958 as part of the 555th Engineer Group. Its mission was to maintain four Rhine River float bridges and furnish general engineer support to the U.S. Seventh Army. Since its activation in 1940, the battalion had seen combat in the Philippines at the end of World War II and had participated in the occupation of Japan. In 1946, it redeployed to Fort Benning, Georgia, where it first served a short stint with the U.S. 3d Infantry Division before assuming duties as a combat training command assigned to the U.S. Army Infantry School.[8] In 1957, the 168th Engineer Battalion from Fort Campbell, Kentucky, exchanged places and equipment with the 70th Engineer Battalion in Germany. It was the second time the 168th Engineers were stationed in the country. The first time, it had fought its way from the beaches of Normandy through the Ardennes into the heart of Germany.[9, 10]

Within days of receiving the German government's request for assistance, the engineer battalions moved 10- and 20-ton, gasoline-driven, crawler-mounted crane-shovels; several bulldozers; and portable water purification equipment on trucks from Karlsruhe and Stuttgart to Schramberg.[11] They arrived on the scene ready to go to work. One of the first tasks for the 168th Engineers was to provide clean drinking water. The town's magistrate had shut down the regular water supply from its reservoir until tests could ensure that the water was safe to drink. The battalion set up the water purification station on the town's soccer field. While Schramberg's citizens gladly made their way on muddy paths and over obstacles to the soccer field to fill buckets and cans with water, children crowded onto the field to garner the sweets and chewing gum that the Americans were giving away. As one woman recalled years later, she was 11 years old when the catastrophe occurred. The girl

Left: A 78th Engineer Battalion crane-shovel clears debris from a Schramberg factory.

Below: A U.S. engineer passes out chewing gum and chocolate to German children.

Bottom: Cars were mired axle-deep in mud on a Schramberg square.

received a piece of gum, which she chewed for days, always wrapping it carefully at night.[12]

In the early days of the cleanup, Schramberg's economic and cultural life came to a standstill. Along with schools, churches, and shops, the Junghans and Hamburg-Amerikanische Uhrenfabrik clock factories had to close until the town could be dug out. The Hamburg-Amerikanische Uhrenfabrik facility was so inundated that Soldiers from the 78th Engineer Battalion had to use a crane to clear mud and debris from it. In other parts of the city, the American Soldiers and German workmen cleaned tons of mud from the streets. The 78th Engineer crane-shovels and bulldozers cleared away rocks that had washed into the town.

About 3 weeks after the flood, as life in Schramberg began to return to normal, engineers from the American and German Armies shifted their efforts to washed-out bridges and roads on the outskirts of town. Together they pulled legs into place for a bridge that connected Schramberg to towns in neighboring valleys. In just a little more than a decade after the end of World War II, former victors and vanquished had become partners who literally pulled together—or, as the Germans would say it, *Partner, die an einem Strang ziehen* (partners who pull a cord together).

Endnotes:

[1]Politische Vereinigung Liste für Umwelt und Bürgernähe, Buntspecht Schramberg, "Unsere Stadt: Schramberg im Schwarzwald," <http://www.buntspecht-schramberg.de/p_8-stadt.htm>, accessed on 4 April 2012.

[2]Christophe Neff, *Sturmfront über Deutschland—vor 50 Jahren meldete Schramberg Land unter*, 26 May 2009, <http://cneffpaysages.blog.lemonde.fr/2009/05/26/sturmtief-uber-deutschland-%E2%80%93-vor-50-jahren-meldete-schramberg-land-unter/>, accessed on 4 April 2012.

[3]Harold Marcuse, Professor of German History at University of California–Santa Barbara, "Historical Dollar-to-Marks Currency Conversion Page," <http:www.history.ucsb.edu/faculty/Marcuse/projects/currency.htm>, accessed on 4 April 2012.

[4]"Sonderflug des Tagblatts uber Schramberg," *Schwarzwälder Tagblatt*, 29 May 1959, Bildergalerie, Presse Unwetter, Privatarchiv Achim Ringwald, Schiltach, <http://www.schramberg.de/ceasy/modules/cms/main.php5?cPageId=1772&view=publish&item=gallery&id=123>, accessed on 2 August 2012.

[5]"Die Katastrophe noch nicht überwunden. Schramberg zwei Wochen nach dem Unwetter," *Südwest-Presse Tübingen*, 5 June 1959, Bildergalerie, Presse Unwetter, Privatarchiv Achim Ringwald, Schiltach, <http://www.schramberg.de/ceasy/modules/cms/main.php5?cPageId=1772&view=publish&item=gallery&id=123>, accessed on 2 August 2012.

[6]Description of Fallschirmpionierkompanie 250 at <http://www.antiquariat-fuer-alle.de/Militaria_Sonstiges.htm>, accessed on 5 April 2012.

[7]Headquarters, U.S. Army, Europe Historical Division, "Operation Gyroscope In The United States Army, Europe, 6 September 1957," Historical Manuscripts Collection, 8-3.1 CN 1, U.S. Army Center of Military History, Fort McNair, Washington, D.C.

[8]"History of the 78th Engineer Combat Battalion," Office of the Historian, U.S. Army Engineer School, Fort Leonard Wood, Missouri, pp. 1–3.

[9]"168th Engineer Battalion Lineage as of 23 Aug 1996," U.S. Army Center of Military History, <http://www.history.army.mil/html/forcestruc/lineages/branches/eng/0168enbn.htm>, accessed on 17 May 2012.

[10]William Hokanson, "168th Engineer Battalion Unit History—1957–1963," 2002, <http://www.usarmygermany.com/Sont.htm?http&&&www.usarmygermany.com/units/Engineer/USAREUR_168thEngrBn.htm>, accessed on 17 May 2012.

[11]Table of Organization and Equipment No. 5-315A, Engineer Construction Battalion, 1 May 1953, Washington, D.C., Engineer Items, pp. 8–9.

[12]"Tote Tiere treibt es die Straße herunter," Schwarzwälder-Bote, 30 March 2012; <http://www.schwarzwaelder-bote.de/inhalt.schramberg-tote-tiere-treibt-es-die-strasse-herunter.fb7289f4-1cfe-4ff6-9dde-9b4346ddace3.html>, accessed on 10 April 2012.

Dr. Adams is a military historian with the Office of History, U.S. Army Corps of Engineers. She holds a master's degree in political science from the University of Kiel, Germany, and a Ph.D. in U.S. diplomatic history from the Catholic University of America in Washington, D.C.

(Afghan Partnership, continued from page 30)

platoon performance and allowing them to make changes and adjustments where necessary. The best after action reviews occurred in a relaxed environment, away from the RCC soldiers, after all mission recovery was complete.

Recommendations and Conclusions

The ETT partnership model provides daily interaction, while minimizing personnel and resource requirements, and can be used at any echelon of command. Daily interaction and supervision enable relationships to be built between the coalition and Afghan partners, and it is these relationships that best promote development. ETTs can be used during any stage of the development cycle, such as receiving the unit from validation training, helping unit leaders conduct complex training, or critiquing missions planned and led by the partnered unit. For a company level partnership, the ETT recommends that at least the Afghan commander, executive officer, first sergeant, platoon leaders, platoon sergeants, and motor sergeant be mentored. The ETT should be composed of at least one officer, one NCO, one mechanic, and one Soldier.

Captain Nichols served as the chief of the 515th Engineer Company ETT. He holds a bachelor's degree in human regional geography from the U.S. Military Academy. He is currently the legal and public affairs officer for the 5th Engineer Battalion, 4th Maneuver Enhancement Brigade, Fort Leonard Wood, Missouri.

First Lieutenant Powell served as the deputy chief of the 515th Engineer Company ETT. He holds a bachelor's degree in civil engineering technology from Southern Polytechnic State University, Marietta, Georgia. He is currently the plans officer for the 5th Engineer Battalion, 4th Maneuver Enhancement Brigade.

Sergeant Bollin served as the NCO in charge of the 515th Engineer Company ETT. He is a graduate of the Warrior Leader Course. He continues to serve in the 515th Engineer Company, 5th Engineer Battalion, 4th Maneuver Enhancement Brigade.

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