ENGINEER

The Professional Bulletin of Army Engineers

January -April 2013



Headquarters, Department of the Army
PB 5-13-1 Approved for public release, distribution is unlimited.

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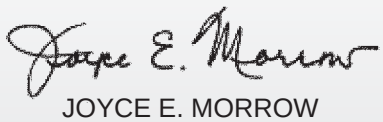
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Engineer (ISSN 0046-1989) is published three times a year by the U.S. Army Engineer School and the MSCoE G-37 Publications Support, 14010 MSCoE Loop, Building 3201, Suite 2661, Fort Leonard Wood, Missouri 65473-8702. Periodicals postage is paid at Fort Leonard Wood, Missouri, and additional mailing offices.

Articles to be considered for publication are due 15 December, 15 April, and 15 August. Send submissions by e-mail to <usarmy.leonardwood.mscoe.mbx.engineer@mail.mil>, or send an electronic copy in Microsoft® Word on a compact disk and a double-spaced copy of the manuscript to Engineer Professional Bulletin, 14010 MSCoE Loop, Building 3201, Suite 2661, Fort Leonard Wood, Missouri 65473-8702. Due to the limited space per issue, we normally do not print articles that have been published elsewhere.

POSTMASTER: Send address changes to Engineer Professional Bulletin, 14010 MSCoE Loop, Building 3201, Suite 2661, Fort Leonard Wood, Missouri 65473-8702.

CORRESPONDENCE, letters to the editor, manuscripts, photographs, official unit requests to receive copies, and unit address changes should be sent to *Engineer* at the preceding address. Telephone: (573) 563-4137, DSN 676-4137; e-mail address: <usarmy.leonardwood.mscoe.mbx.engineer@mail.mil>; Internet home page: <http://www.wood.army.mil/engrmag.htm>.

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ADDRESS CHANGES for personal subscriptions should be sent to the Superintendent of Documents, P.O. Box 979050, St. Louis, Missouri 63197-9000.

ENGINEER

The Professional Bulletin of Army Engineers

Volume 43 PB 5-13-1 | Headquarters, Department of the Army | *January–April 2013*

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Front cover: Engineers tie a time fuse to a detonating-cord firing system during explosives training. Photo by SGT Michael J. MacLeod

Inside back cover: Photo by Mike Curtis

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Clear the Way

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

"You cannot be disciplined in great things and undisciplined in small things. Brave undisciplined men have no chance against the discipline and valor of other men."

—George S. Patton[1]



This edition of *Engineer* comes at a time when the Army and the Nation are entering a period of federal budget uncertainty and what is likely to be a prolonged era of diminished resources to accomplish Army missions. This environment will put a premium on our ability to analyze tasks and meet readiness needs (not wants) in the most disciplined way and to use available resources—people, time, equipment, money, and virtual and real training space—in the most disciplined way. We must achieve maximum impact with our troops, time, and resources by simultaneously training multiechelon skills, using mission-focused training, and casting away nice-to-have actions and entertaining diversions. Administrative discipline and fiscal discipline are not new to the Army, nor do they prevent readiness. In fact, they enable it—see the quote above.

The near future promises to be tumultuous as various political actions and forces buffet Army resources, but this will not affect the Nation's expectations of us. You will have to navigate this environment, preparing your organizations and formations to be the best and highest-performing possible, whether you are a Soldier, NCO, officer, or civilian. Most important will be to avoid panic and knee-jerk reactions to the wide variety of worst-case scenarios that will be discussed, some of which may happen, but others may not. Cool heads and passionate hearts focused on what is important are required now. The most important thing will be to use rigorous, disciplined analysis to overcome the few significant challenges that matter. Do not respond to the tumult with poorly thought-out, counterproductive actions.

At the heart of government and Army institutional dysfunctions lies the poorly thought-out, undisciplined desire to centralize resources and decisionmaking authority in the face of perceived crisis, be it budget or otherwise. We cannot allow ourselves and our Army to be driven down that path. The Army in the field has become the most agile and adaptable military force in the history of warfare, and it achieved this by decentralizing authority and decisionmaking in combat in almost every aspect of leadership and management. In contrast, the institutional Army and Department of Defense continue to perform expensively and sclerotically because of overcentralization of almost every aspect of their leadership and management. Approximately 100 general officers lead the Army in the field, while about 200 general officers and 450 Senior Executive Service officials (civilian equivalents to general officers) lead the institutional Army. Clearly, authorities and resource management are fragmented, yet much more tightly controlled at flag rank in the Army institution. This has not enhanced performance, but diminished it—expensively. These are hardworking, dedicated public servants, but we have trapped them in an overly centralized set of processes that cannot hope to deal with the complexity and diversity of the Army.

The centralization of decisionmaking authority, time and money management, and other resources is always justified incorrectly in the name of *efficiency* and sometimes also in the name of *quality*. But centralization is ***always*** the enemy of efficiency and quality for some very simple and obvious reasons:

- Centralizing authority and decisionmaking creates principal-agent problems. The principal has a mission and needs resources to achieve it. The agent is put in place to say, "I will manage your resources for you in the name of efficiency and quality." This sounds plausible until you realize that the principal and the agent from the very beginning have divergent goals, risk preferences, and situation understanding.
- The best understanding of an organization's needs and challenges is known at the lowest organizational level. The local nature of training, leader development, readiness, and information is obvious and not overcome through periodic and less detailed Army standard reporting systems. Moving information up the chain of command or chain of management control to a central decisionmaker leads to the inevitable reduction of the accuracy and quantity of information available to make a decision, even in the digital age. With less information—including less accurate information—what are the chances for the best, most nuanced decision? Zero. Poorer decisions result, and that is not the only flaw.

- Centralizing the awareness and information needed to get a decision from higher up takes time, even in this digital age. The higher that decisionmaking is centralized, the greater the number of situations and requests coming in to the central authority, resulting in a huge lack of responsiveness to urgent needs. We have all lived out this scenario many times.
- Centralizing decisionmaking and resource management removes or degrades technical depth and competency across the force. Without authority, one has to kick all decisions upstairs and need never work through the painful process of remedying conflicting priorities and allocating shortfalls. So, less and less of the force becomes practiced at these core leadership and managerial tasks. Why would we voluntarily choose to degrade the skills and competency of the force?
- And last, centralizing decisionmaking and resource authorities distributes inefficiency differently in the force and increases it at the lowest level, which is the business end of our profession. One of the best examples is the Army installation, the "power projection platform" where units train and then deploy to fight. The Army installation is like the aircraft carrier for our field Army forces. But on the aircraft carrier, there are two bosses. The ship boss is the captain, who guides the employment of the carrier and its supporting ships to preserve their capability to execute missions. The air boss, the officer in charge of the air group, has missions to strike, protect, or reconnoiter and influences the placement of the ship to perform those tasks. Do I need to point out that both bosses live on the carrier? On an Army installation, we have an aircraft carrier with one chain of centralized command for the garrison (U.S. Army Installation Management Command), one command to provide logistics services (U.S. Army Materiel Command), two commands for the mission command of forces (U.S. Army Training and Doctrine Command and U.S. Army Forces Command), and one command to provide communications and network services (U.S. Army Network Enterprise Technology Command).

Do I need to point out that none of these centralized chains of command are located on the installation? It is like an aircraft carrier with the engine room under one off-ship chain of command, the deck crew under another off-ship chain of command, the air group under two different off-ship chains of command, and the security and air defense group under another off-ship chain of command. Can you imagine how this might work on an aircraft carrier? Yet, that is our system on Army installations. The result appears efficient at the top Army "enterprise level," but has distributed huge inefficiencies at the senior mission command and installation level. It is like a model United Nations on an Army installation, with gigantic chunks of leader time consumed in coordinating the most basic forms of support for our missions to train and deploy to combat. Readers can no doubt contribute many anecdotes and stories illustrating these problems of overcentralization. But these problems are not systematically measured by the Army.

The uncoordinated nature of operating this way will become more pronounced as each of these commands undergoes budget revisions in the near future. This will have sudden and chaotic effects, at least during this fiscal year. You will have to overcome these gaps and lack of linkages at the local level with disciplined effort and analysis. Do not abandon hope; apply your iron will to train and your creativity and agility to achieve your mission in any environment, using the same iron will, creativity, and agility demonstrated by the field Army in combat for the last 12 years. And on this note, I close with another quote from George S. Patton:

"Battle is an orgy of disorder. The sudden change from accustomed order to utter disorder, to chaos, but emphasizes the folly of schooling to precision and obedience where only fierceness and habituated disorder are useful."[2]

Endnotes:

[1]General George S. Patton, Jr., 17 May 1945, Address to officers and men of the 2d Armored Division, *The Patton Papers*, II, 1974.

[2]General George S. Patton, Jr., 27 October 1927, Lecture "Why Men Fight," *The Patton Papers*, I, 1972.



Lead the Way

Command Sergeant Major Terrence W. Murphy
Regimental Command Sergeant Major



I have been the command sergeant major of the U.S. Army Engineer School and the Engineer Regiment for 20 months. For me, every day of that time in this position has been absolutely fantastic and rewarding. I had a few goals when I was selected for this position and would like to update you on them.

My first goal was to revive communication throughout the Regiment, pushing information out to ensure that our senior enlisted Soldiers—Regular Army and Reserve Component—are informed. It is great that sergeants major from the Regular Army, the Army National Guard, and the U.S. Army Reserve and students of the U.S. Army Sergeant Major Academy are sharing ideas, information, and ways to make our Regiment better. I believe that the information flow will fuel and increase communication up, down, and side to side; and it is something that will strengthen our Regiment. I believe this goal was achieved, and I appreciate the support from the sergeants major in the Regiment. Increasing the educational opportunities was also a goal associated with improving the communication throughout the Regiment.

The second goal was to get command sergeants major into the Engineer Precommand Course. Initially, only commanders came to Fort Leonard Wood, Missouri, for the course; and I could not understand why command sergeants major did not also attend. The purpose of the course is to inform incoming commanders about what the Regiment is doing, from the viewpoint of the Engineer School and throughout the Army as a whole. Why would the command sergeants major not need to get that same information? Their attendance will increase the teamwork of the command team and the knowledge of the commander and the command sergeant major.

The third goal concerns the enlisted population in the Regiment, who need to "up" their game personally and professionally where education is concerned. We must find a way to improve the level of credentials for enlisted Soldiers. Recently, implementation guidance was signed for the credentialing pilot program that the Engineer School is conducting. The program will assist in the credentialing of commissioned officers, warrant officers, and enlisted Soldiers. This will take the enlisted population to a place where we have never been. It will assist the Regiment by bringing it a credentialed skill set and will assist individuals once they begin their transition from the military.

We also want to increase the professional literary skills of our enlisted population through collegiate styles of researching and writing. The exposure of our enlisted leaders to this type of education through the Noncommissioned Officer Education System and other means will bring the Army more diverse leaders who can read, comprehend, write, research, and transform their thoughts in a literate, understandable fashion. Better-prepared, -educated, and -credentialed NCOs will provide better-prepared leaders for their unit missions and staff functions. The training provided and the methods used will also provide the Regiment with young leaders who are able to write for professional publications, share their knowledge, and help document the history of this great Regiment. Units will benefit when these leaders prepare and produce their annual unit histories.

This will be my last article as your regimental command sergeant major, since I have been selected to serve as the Maneuver Support Center of Excellence command sergeant major. I will soon transition to that new role. I want to thank everyone in the Regiment for their support and confidence in me during my tenure in this position. It has been an honor and a privilege to serve. Just more than 29 years ago, I became a member of the Regiment; and I do not regret a single day of my service. I am absolutely awestruck with the things that the Regiment has accomplished thus far and where it will go in the future. Thank you all for what you do every day and for what you will do in the future.

Essayons!

"Better-prepared, -educated, and -credentialed NCOs will provide better-prepared leaders for their unit missions and staff functions."

Show the Way

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



Brigadier General Peter A. "Duke" DeLuca, U.S. Army Engineer School commandant, describes the Engineer Regiment as the Army's "Swiss Army knife." That's an apt analogy; the Engineer Regiment brings a lot of capability to the Army's tool chest. Over the past decade, this Swiss Army knife has served extremely well, proudly reflecting the heritage of those who served before us, and in many cases, being used for missions for which it was never designed. Now the Engineer Regiment is taking a look at that tool, performing preventive maintenance checks and services on it, recalibrating it, and retooling it to meet the requirements for the Army of 2020 and beyond. In addition to the Engineer Regiment's overhaul, the Army is making some changes as well. Many of these changes impact the whole Army, while others are focused specifically on warrant officers. In this Show the Way article, I'll provide a brief overview of some of the key changes affecting engineer warrant officers today and in the years to come.

The first changes are those to the promotion system. Over the past two promotion board cycles, there have been sudden and unexpected changes, including the following:

- Board dates have shifted from January to the original time frame of April/May.
- Zones of consideration have shrunk from 1 year to approximately 8 or 9 months.
- Some warrant officers, for the first time in several years, have not been selected for chief warrant officer three and chief warrant officer four on their first look.

The Army drawdown is the primary factor driving these changes. In the early 2000s, the Army had a serious shortage of chief warrant officers three and chief warrant officers four, so it made adjustments to address the problem. Pay compression in all warrant officer pay grades was a major contributor to the Army's inability to retain senior-grade warrant officers who were past 20 years of service, so the Army implemented targeted pay raises for warrant officers. In 2006, the Army accelerated promotions to chief warrant officer three from 5 years to 3 years and to chief warrant officer four from 5 years to 4 years. That same year, all chief warrant officers two who would have been below the zone for promotion were moved into the primary zone, resulting in a large influx of chief warrant officer three promotions.

Those changes went a long way toward fixing the problem, but they also caused a bubble in the senior-grade warrant officer populations. Now, the Army is downsizing, but wants to do it in a way that retains the best warrant officers and protects them from undeserved and unnecessary cuts. This is the reason that the zones have changed. By shrinking the zones, the Army can flatten the large bubble of senior-grade warrant officers and shift some of them into other year groups. Also, by gradually returning to a longer time between promotions, the buildup to chief warrant officer three and chief warrant officer four will slow down. This will allow warrant officers to serve longer, gain greater experience, and reach their full potential.

Finally, while promotions are becoming more competitive, there are a few things to keep in mind that will make warrant officers more competitive. Because the Engineer Regiment has a small warrant officer population compared to other branches, the Army isn't holding its military occupational specialties (MOSs) to a cap according to grade. Therefore, qualified engineers in the grade of chief warrant officer three may be promoted even if the Engineer Regiment has a full authorization of chief warrant officers four. Warrant officers will be promoted based on how their records stack up against warrant officers in other branches. Engineer warrant officers who do their jobs well, continue to develop themselves, perform as team players, remain visible, stay engaged, and support their commanders will be competitive. They should also remember to update their officer record briefs and keep their Department of the Army photographs current.

Other changes that affect warrant officers are the impending modifications to the officer evaluation report

and the professional military education (PME) system. The new evaluation report divides officers into the following categories:

- ***Company grade.*** Second lieutenant to captain and warrant officer one to chief warrant officer two.
- ***Field grade.*** Major to lieutenant colonel and chief warrant officer three to chief warrant officer five.
- ***Strategic leader.*** Colonel to brigadier general.

Among other changes to the officer evaluation report, raters will have a managed rating profile just as senior raters do today.

The PME system is also undergoing significant changes. Now, the system is not linked to promotion because the Army realized that the pace of operations has not allowed many warrant officers to attend PME classes. Therefore, it unlinked the PME system from promotion so that those warrant officers were not at a disadvantage. However, now the Army is conducting studies to determine if PME should again be linked to promotions. If PME does become linked to promotions, it will be phased in gradually by grade, probably starting with the requirement that chief warrant officers four graduate from the Warrant Officer Senior Staff Course before being promoted. No decisions have been made yet, but my advice to all warrant officers—especially those who are behind in more than one PME course—is to attend PME as soon as possible.

In another major change, soon there will no longer be separate construction engineering technician courses (MOS 120A) for the Regular Army and Reserve Components. They all will receive the same training in an integrated class, starting with the Warrant Officer Basic Course in fiscal year 2014. The geospatial engineering technician (MOS 125D) warrant officer courses have always been integrated. Other changes are being explored by the ongoing Warrant Officer Continuum of Learning Study and will be outlined in a final report due later this year.

Force structure changes will continue to affect the warrant officer population, and overall authorizations will fluctuate as units stand up or inactivate. There are several initiatives that impact the 120A and 125D warrant officer MOSs. The brigade engineer battalion will include a warrant officer with MOS 120A. This is not a growth, but a reallocation of the 120A warrant officer already within the brigade. This initiative will place that warrant officer in a key position to apply skills as the technical expert and advisor for construction engineering. The Army is also conducting an experiment to place an operational energy team, including a warrant officer with MOS 120A, within the brigade combat team. If the team gets approved, the 120A in the brigade engineer battalion will fill that role as an additional duty or the Army will have to denote a bill payer if an additional warrant officer with MOS 120A is added. Also in the works for geospatial engineers is a force design update that will result in adding 125D warrant officers as follows:

- One chief warrant officer two to each engineer brigade.
- One chief warrant officer three and one chief warrant officer four to the U.S. Army Special Operations Command.
- One chief warrant officer three and one chief warrant officer five to the Army Geospatial Intelligence Battalion.

These changes can be unnerving because of the uncertainty they bring, but they are part of the normal Army life cycle. After every major conflict, the Army returns to the basics, incorporates lessons learned from recent and distant conflicts and retools itself to meet future requirements. The Engineer Regiment is doing the same. Engineer warrant officers are a small, yet vital, component of the Engineer Regiment's role as the Army's Swiss Army knife. Stay sharp, perform preventive maintenance checks and services, and continue to be the professionals that you have proven yourselves to be. I am proud to serve with you and to be your representative at the Engineer School and Regiment.

Essayons et Faissons!





INITIAL-ENTRY CAPABILITY

FOR THE ENGINEER REGIMENT IN SUPPORT OF THE ARMY OF 2020

By Colonel Adam S. Roth

The Army of 2020 (A2020) will be an expeditionary Army with perhaps only 1 percent of its forces stationed outside the continental United States. The tenets of A2020 (to include AirSea battle, sea basing, area access, and area denial) are parts of what will become the new "normal" for the Engineer Regiment. While the A2020 will be required to perform offense, defense, stability, and defense support of civil authorities operations, it can perform none of these functions if conditions are not set for the initial entry (IE) of forces.

These are challenges that have not been encountered by U.S. forces from an infrastructure perspective since the establishment of the Cam Ranh Air Base during the Vietnam War and from the area denial perspective since the landings at Normandy Beach during World War II. The engineers serve as the Swiss Army knife of the Army and must be able to perform a multitude of missions ranging from infrastructure to area denial and the entire range of engineer operations. The purpose of this article is to broadly frame the problems that engineers will face in setting conditions for A2020 success, to show the hard work being performed at the U.S. Army Engineer School and Regiment to solve these problems, and to solicit assistance from the Regiment in shaping those solutions.

Initial Entry

The IE of forces must be seen in varying contexts. The IE of forces that support a contemplated area of operations may be in a land-based or littoral area. Each has vastly different circumstances for the engineer problem set. Another variable is the type of mission that will be performed, leading to one of the following three scenarios:

- A Phase 1, 2, or 3 fight, possibly facing aggressive access-denial and area-denial measures that might include deliberate defense in depth and complex layers of improvised explosive devices.
- A deployment to the scene of a humanitarian episode such as a genocide. The deployment may not include active-defense measures, but infrastructure at such sites may be less than optimal to support insertions by air or sea.

- A deployment that supports homeland-based defense support of civil authorities or humanitarian assistance/disaster relief such as the Haiti earthquake recovery in 2010, where forces encountered heavily damaged airport and seaport facilities.

In these scenarios, engineers will set the conditions for the joint force commander to meet these challenges. The variables of time, infrastructure, and enemy situation figure into the calculus of how to seize a lodgment, expand it, and set conditions for follow-on forces and the generation of combat power. The brigade engineer battalion (BEB) serves as the mobility/countermobility/survivability solution at the point of need for the brigade combat team commander in those initial stages. They are part of the *tooth* in the tooth-to-tail ratio; but in setting the theater, engineers at echelons above brigade (EAB) also help generate the *tail* needed to develop and sustain combat power. In the IE challenge, it is imperative to realize that the engineers serve as both tooth and tail.

Knowledge of the Theater

Only about 5 percent of the earth's surface is digitally mapped. Any IE capability must include adequate geospatial capability at the planning headquarters, with sufficient data for the identification of land masses or sea areas and a situational understanding of enemy behavior there. This is a critical geographic intelligence function that may develop for years after IE.

Conditions for IE capability must also be set through a cultural understanding, ranging from the individual level, to the indigenous tribe/group/leader level, to the diplomatic/political level. The engineer participating in humanitarian construction as part of an overarching theater security cooperation plan may also be years ahead in setting conditions for eventual IE operations. Those humanitarian projects that remain may partially set infrastructural conditions for later IE operations, ranging from simple structures and well drilling to the dredging of ports. This is the act of "setting the theater" and must be ongoing and continuous, planned, and routinely resourced.

Operational energy will also set conditions for the employment of any force to assure IE operations. As technologies develop that decrease the need for fossil fuels, their successful employment and institutionalization will be critical. If the logistical footprint can be decreased appreciably, it will make more lift available for IE and create leaner supply lines for the duration of operations.

The last portion of situational understanding of a particular area is engineer interoperability with special operations forces that may have been in the theater long before declared hostilities. Engineers must anticipate the needs of those forces by establishing habitual relationships through training and try to establish dedicated engineer assets to support their operations (possibly in the form of an engineer special-operations force support squadron).

Modes of Entry

The five modes of entry into a theater of operations are as follows:

- ***From space.*** The use of directed-energy weapons can provide an entry of effects into a theater of operations. The more realistic space effect is the use of communication and surveillance satellites that support numerous mission command and geospatial platforms. Space superiority remains a priority in IE.



Future deployments may present challenges to engineers such as this salvage and repair operation in the main seaport in Port-au-Prince, Haiti.



Engineers assist entry into the theater of operations by sea.

- ***From cyberspace.*** This was used successfully during the 2008 Russian incursion into Georgia to project effects into a theater of war. The engineer role in setting conditions for these effects could include providing facilities and "clean power" in the operational area.
- ***From land.*** The use of Kuwait as an intermediate staging base was a luxury that the United States enjoyed during Operation Iraqi Freedom. This may not be the case in the future.
- ***From the sea.*** Engineers have not been fully challenged in this realm since the landings at Inchon during the Korean War or Da Nang during the Vietnam War. The most recent example of Army port establishment in a denied area was in Haiti after the 2010 earthquake, and the denial was not by an enemy force but by forces of nature. Key IE capabilities will be required to set the theater, and they will be a joint responsibility among many branches. Key IE engineer requirements in support of seaborne operations may include the following:
  - Diver support for port reconnaissance, hydrological survey, minor pier repair and construction, demolition (to include the destruction of sea- and shore-based mines), and salvage operations.
  - Engineer amphibious operations to augment divers.
  - Engineer support to the joint logistics over-the-shore (JLOTS) process. These requirements continue to evolve, and there are engineer forces embedded with certain transportation units tasked with the JLOTS mission. The implied tasks of this mission include the construction of marshalling yards that can be used by material-handling equipment for downloaded shipments, basic combat roads and trails to support the onward movement of forces, and the development of protective systems to support those operations and the mission command that controls them.
  - Pier and causeway construction and reconstruction in conjunction with transportation and U.S. Navy units.
  - Area clearance of specified areas, as in Bosnia and Afghanistan operations.
  - Route clearance within the area of operations.
  - Power generation to support the JLOTS and critical mission command systems.
  - Support to the interface of the offshore petroleum discharge and inland petroleum distribution systems and the provision of sea-based petroleum, oil, and lubricants to support follow-on operations, to include the construction of fuel bag farms and trailer transfer points.
  - Fire protection support to fixed- and rotary-wing aviation.

"As technologies develop that decrease the need for fossil fuels . . . successful employment [of operational energy] and institutionalization will be critical."



A2020 engineers will be called on to perform a multitude of missions such as conducting rapid runway repair.

- Contract capability, ranging from acquiring construction materials to providing services germane to an austere theater.
- Environmental support planning that generates baseline surveys before, or concurrent with, area occupation.
- Construction of ammunition holding areas.
- Construction of Level 3 medical facilities.

- ***From the air.*** Although it is the quickest way into a theater, it is also limited by space available on U.S. Air Force aircraft. The mission of airfield seizure remains an enduring requirement. The role of the engineer is of particular importance as IE operations commence. Once airborne or airmobile forces reach the ground and dominate any opposing force, the work of the engineer begins in earnest. The IE capability in connection with the Air Force must include the ability to—
  - Conduct rapid runway repair and improve existing runways (including the need for quick compaction capability, the construction or clearance of areas with diminished foreign-object damage hazards, or the use of AM-2 matting or other technical alternatives to expand the maximum-on-ground rating).
  - Work with Air Force engineers to establish functionality such as lighting, instrumentation, standoff, control towers, and navigational aids.
  - Establish fire protection for flight line operations.
  - Establish fueling and rearming points for rotary- and fixed-wing aircraft and off-loading ground vehicles.
  - Conduct facility repair and construction to support air terminal operations (to include force protection for passengers in marshalling areas) and construct holding areas for material.
  - Increase fuel storage in the lodgment.
  - Assist the arrival and departure airfield control group with engineer material-handling equipment.

After reception, staging, onward movement, and integration, the force performing a mission will be supported by engineers. The brigade combat team, with its organic BEB, will be tasked with the following requirements:

- Establishment of tactical assembly areas and associated force protection measures.
- Construction of combat roads and trails.
- Route clearance and offensive breaching.
- Lethal countermobility.
- Gap crossing.
- Construction of survivability positions.
- Construction of basic sanitary facilities.
- Establishment of force protection for mission command and air defense nodes.
- Construction of holding areas for enemy prisoners of war.
- Construction of temporary shelters for displaced civilians.
- Establishment of patrol bases.

There will also be a multitude of missions to be performed by EAB engineers (directly assigned to BEB formations or under EAB engineer mission command), to include the critical mission of geospatial intelligence throughout the operation, maturation of the theater, and eventual phase changes that may lead to different objectives, such as contractor transition, improved quality of life, and the eventual building of partner capacity.

Engineer School and Regiment Accomplishments

The EAB redesign has been the centerpiece of efforts to support IE. The BEB is at the point of need in brigade combat team formations and will be ready to accept EAB engineer capability based on the future mission. The EAB redesign community of practice will continue to contribute to the force design update process. Thus far, force design updates for the engineer construction company and

the geospatial planning cell are moving forward. Both of these capabilities, as delineated in this article, are critical condition setters for IE. In the coming year, the engineer combat company, the EAB battalion headquarters, and the theater engineer command will be reviewed and modified to support IE and engineer operations across all phases of an operation.

The Engineer School and the Maneuver Support Center of Excellence continue to participate in Army lessons learned and infantry warfighter forums, where IE is a regular topic. The Engineer School and Regiment are helping craft IE doctrine, to include supporting the movement-and-maneuver concept at the U.S. Army Maneuver Center of Excellence and the joint concept for entry operations of the joint staff (in connection with the Army Capabilities Integration Center, U.S. Army Training and Doctrine Command).

The Engineer School, in connection with the U.S. Army Corps of Engineers (USACE), held a secure video teleconference in September 2012 that hosted numerous Army service component commands and brigades and the three components of the Engineer Regiment. The topics of discussion were IE concepts, the level of training and readiness to perform IE operations, the needs of the Army service component commands in support of their geographical combatant commanders, and ways that the Engineer Regiment can help meet their IE challenges. The Engineer School forged a strategic relationship with the U.S. Army Transportation School and attended JLOTS events at Fort Story, Virginia, and Scott Air Force Base, Illinois, last year. JLOTS is an Army mission for the joint force, and we continue to identify gaps in doctrine and planning and to develop solutions to meet the most intractable IE challenges along the doctrine, organization, training, materiel, leadership and education, personnel, and facilities spectrum.

The Engineer School commandant and key staff attended the Joint Operational Access Exercise at Fort Polk, Louisiana, in October 2012. Key lessons from that exercise directly affect modifications of the EAB force structure that will support light and heavy airfield repair packages and the training that is required to sustain them.

The Solution and You

None of this planning can be accomplished in a vacuum. The connectivity within the Engineer Regiment will inform these processes. For engineers from the Regular Army, the Army National Guard, the U.S. Army Reserve, and USACE who can influence and provide a voice, the following steps are suggested:

- Continue to participate in the EAB redesign community of practice. Those who have not already joined are asked to contact the author at <adam.s.roth2.mil@mail.mil> to be included.
- The Engineer School commandant seeks a joint engineer exercise that will test IE concepts in supporting the maneuver force. This could be part of an existing exercise or a stand-alone exercise. The USACE joint rapid air field construction (now engineer rapid air field construction), which was last fully tested at Exercise Talisman Saber in Australia in 2007, was also a staple of these types of exercise for many years. If there is a desire in the field to participate in, reinvigorate, or sponsor such an exercise, please contact the author to share your thoughts.
- Many of the junior leaders who developed the tactics, techniques, and procedures of IE during the late 1990s are now senior leaders in the Engineer Regiment. Have those tactics, techniques, and procedures been codified into institutional documents? Are there gaps in training that the Engineer School and Regiment can help fill? Are there products and smart cards that can assist Sappers at the hammerhead? Are there thoughts about developing gunnery tables or drill manuals that focus on the engineer IE tasks required to get troops on the ground, on the basics of soil mechanics to achieve proper compaction at an austere forward landing site, or on standardizing airfield repair packages? Engineer leaders are encouraged to contact the author as the Regiment works to answer these questions.

Conclusion

This article delineates what must be done, but does not determine who will do it. What capabilities will the Regular Army require of the Reserve Component? Which service will be responsible for performing what functions? Will the reduction in naval mobile construction battalion capability create new mission sets for the other services? Will the need for simultaneous action in A2020 for multiple landing sites exceed the capabilities of the U.S. Marine Corps air-ground task force? Will the other services have to augment the Marines in the function that has been their sole domain since the end of World War II? Lastly, will the Engineer Regiment have the depth of skills required to relearn tasks that have long been neglected and will there be resourcing available to make this a reality?

As always, the author welcomes vociferous debate.

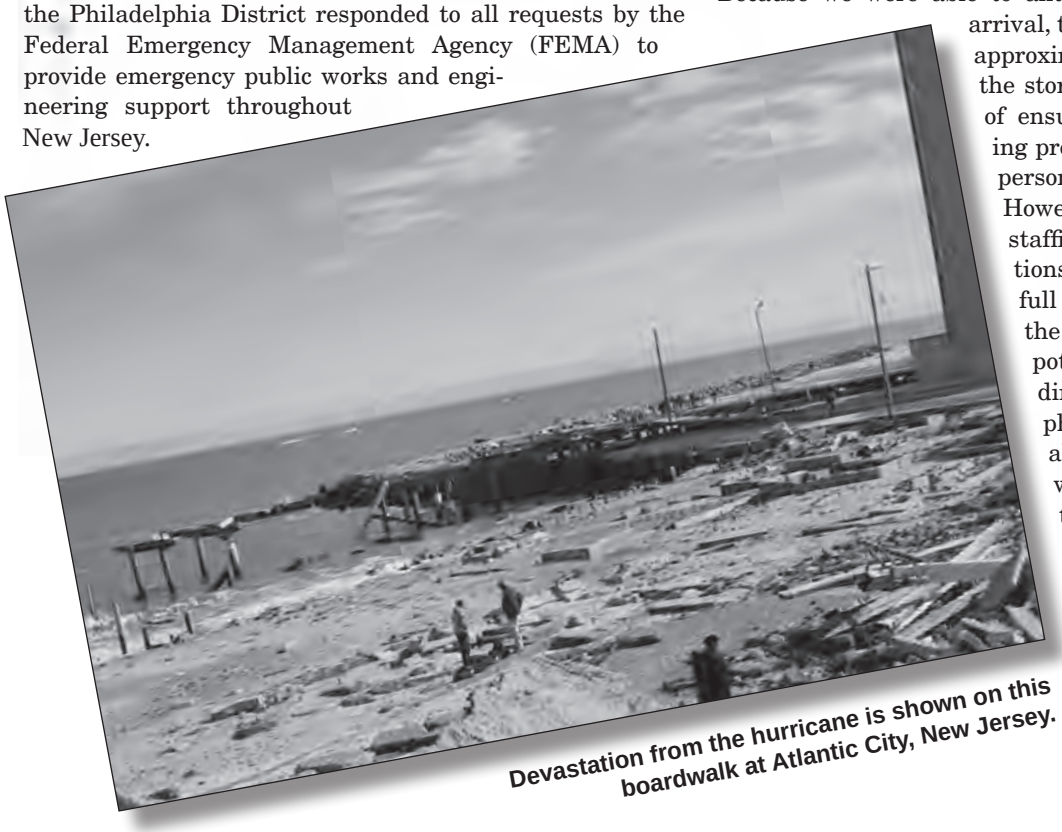
Colonel Roth serves as the deputy assistant commandant (Army Reserve) at the U.S. Army Engineer School. Before graduating from the U.S. Army War College, he served as the commander of the 844th Engineer Battalion and deployed to Iraq as part of Task Force Sky. He served in numerous staff assignments, including executive officer of the 458th Engineer Battalion and has commanded a combat heavy engineer company. 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.



Things I Learned from Superstorm Sandy

By Lieutenant Colonel Chris Becking

On 29 October 2012, after causing many deaths and creating much destruction on its move northward during the preceding 7 days, Superstorm Sandy came ashore in New Jersey. Sandy caused levels of destruction not seen in recent memory and was eventually categorized as the largest Atlantic storm (based on storm diameter) in U.S. history. As the U.S. Army Corps of Engineers (USACE) district responsible for the majority of the New Jersey coast, the Philadelphia District responded to all requests by the Federal Emergency Management Agency (FEMA) to provide emergency public works and engineering support throughout New Jersey.



Devastation from the hurricane is shown on this boardwalk at Atlantic City, New Jersey.

During the month after Sandy arrived, this mission provided several experiences that had been foreign to me, but taught a number of lessons worth sharing with the Engineer Regiment.

An ounce of prevention is worth a pound of cure.[1] We have often heard this familiar quotation of Ben Franklin, but many of us only remember it after a problem arises. Because we were able to anticipate Superstorm Sandy's arrival, the Philadelphia District had approximately a week to prepare for the storm. We took the usual steps of ensuring that standing operating procedures, phone rosters, and personal data were up to date. However, we also increased the staffing of the emergency operations center (EOC) and moved to full 24-hour operations before the storm. Given the high potential for Sandy to come directly toward the Philadelphia area, we ensured that all EOC personnel moved to within walking distance of the EOC before the storm arrived. We also contacted key local leaders and the EOCs of other agencies to ensure that we had a common understanding of roles, synchronized plans, and redundant communications. While preparations are never



This Ocean City guard rail was taken down by Superstorm Sandy.

complete and there is rarely advance notice of an emergency, we greatly benefitted from this "ounce of prevention."

USACE needs its military leaders. People not familiar with USACE often ask if there are any civilians in the organization, not realizing that only about 600 of the approximately 37,000 personnel in USACE are Soldiers. While many USACE civilians say that USACE and the Philadelphia District are "really run by civilians," events at the Hoboken Ferry Terminal in Hoboken, New Jersey, after Superstorm Sandy demonstrated why USACE remains a military organization with military leaders at various levels. The Hoboken Terminal, an intermodal transportation hub that supports tens of thousands of people commuting daily into New York City from New Jersey, experienced severe flooding and a resulting power outage due to the storm. Political leaders identified the restoration of service at the terminal as critical to returning normalcy to the New York City metropolitan area. Many agencies, civilian and military, were busily working to restore services. However, each agency focused on its own task without regard to the larger picture. By applying leadership—asking questions, identifying constraints and their corresponding exception authorities, and coordinating operations across multiple agencies—two USACE Soldiers without detailed technical knowledge of the inner workings of a ferry terminal ensured that the terminal moved toward full operations before the upcoming Monday morning commute. Over the following 2 weeks, I saw numerous, similar examples where USACE Soldiers applied Army leadership to solve problems and complete the mission.

Every engineer officer should have an assignment in USACE. The 554th Engineer Battalion graciously provided six officers, only one of whom had any previous USACE experience, to support the Philadelphia District with the response to Superstorm Sandy. These officers served admirably, helping lead the Philadelphia District EOC, coordinating an immense emergency power operation at the Lakehurst (New Jersey) incident support base, and assisting the restoration of the Hoboken Terminal. While their service is another example of the need for military leaders in USACE, their experience was also hugely valuable to their professional development and was personally rewarding. Their experience highlights a worthy goal for our Engineer Regiment—all engineer officers should have experience in USACE during their careers.

USACE civilians are technical experts who can apply their knowledge and skills to many problems. FEMA assigned many tasks that were outside our normal expertise to the Philadelphia District. In each instance, USACE personnel applied their experience and skills to achieve success. In one example, FEMA tasked the district to remove 200 million gallons of water from the Passaic Valley Sewerage Commission wastewater facility in Newark, New Jersey, the largest facility of its type in the eastern United States. Philadelphia District civilians volunteered to supervise this massive pumping operation and did so with distinction. They coordinated the efforts of the USACE contractors and the commission pumping operations to remove the water ahead of schedule. However, the mission soon evolved. The USACE volunteers found themselves advising on the rehabilitation of other parts of the facility. While not within their field of expertise, they applied their existing skills and knowledge to assist with sedimentation ponds, sludge tanks, and centrifuges. Their efforts allowed the



A residential house floats in the Intracoastal Waterway.

commission to return to full primary treatment only days after the storm and partial secondary treatment in weeks instead of months. Their example was typical of USACE employees during Superstorm Sandy response; they applied their expertise to solve problems outside their normal duties.

The Nation expects USACE to be able to do just about anything. A corollary to the above lesson is that there is no limit to what the Nation might ask USACE to do. Even compared to the typical range of normal USACE missions, Superstorm Sandy presented a much broader array of tasks than the Philadelphia District ever envisioned. In the span of 72 hours, New Jersey Governor Christopher James "Chris" Christie asked if the district could pull a roller coaster out of the ocean, FEMA tasked it to supervise dive operations at the bottom of a tank of human waste, and the New Jersey Department of Environmental Protection inquired about recovery of a house floating in the Intracoastal Waterway. While these were unusual requests, they were not uncommon during the immediate response to Superstorm Sandy and will probably be representative of tasks assigned to USACE in the future.

USACE handles emergencies like a team sport. During the first week alone, I received at least six telephone calls from other district commanders offering assistance. I came to appreciate this honest and open offer of support; I made many late-night calls to request favors, get advice, and address problems. I cannot imagine a similar situation among peer commanders in other parts of the Army. This teamwork was fantastic, but it was not unique to this one storm. USACE approaches all situations with the same ethic of cooperation and collective success.

Contracts can be written and implemented quickly. Despite common misperceptions of an overly bureaucratic and burdensome process, the Philadelphia District executed several acquisitions very quickly. On one occasion, FEMA tasked the district to repair a breach of the barrier island at Mantoloking, New Jersey. After the storm created a new ocean inlet through the middle of the Mantoloking community, the Philadelphia District identified the best engineering solution, found a suitable local business to perform the repairs, signed a contract, and watched the contractor begin work within 48 hours of the formal tasking from FEMA. Other acquisition actions occurred even faster.

Negotiation with elected officials is the same in any language. Many engineer officers have honed their engagement skills through years of meeting with government officials or tribal leaders throughout Central and Southwest Asia, but might feel daunted by the thought of meeting with an elected official in the United States. In my experience, the engagement skills I used with Afghan warlords worked extremely well in meeting with U.S. congressmen or state governors. The meeting preparation and the skills used during the meeting are very similar—engineer leaders should just use different jokes and not exchange kisses at the end.

We have not yet seen the final chapters on Superstorm Sandy. Even now, the Nation is debating the level and scope of recovery to invest after this tremendous storm. Regardless of how this debate concludes, USACE will be a key partner for recovery and reconstruction. While the above lessons were particular to my experience during the immediate response to Superstorm Sandy, they will bear consideration for the future recovery and reconstruction.

Endnote:

[1]U.S. History.org™, <http://www.ushistory.org/franklin/quotable/singlehtml.htm>, accessed on 31 January 2013.

Lieutenant Colonel Becking is the commander of USACE, Philadelphia District. He is a graduate of the Engineer Officer Basic Course, the Infantry Captains Career Course, the Combined Arms and Services Staff School, and the Command and General Staff College. He holds a bachelor's degree in mechanical engineering from the University of Michigan, holds a master's degree in mechanical engineering from Auburn University, and is a registered professional engineer in the Commonwealth of Virginia.

19TH ENGINEER BATTALION RESPONDS TO SUPERSTORM SANDY

By Captain Joel W. Prusi

In June 2012, the 19th Engineer Battalion, Fort Knox, Kentucky, received an order to support the 20th Engineer Brigade severe weather response force mission in the U.S. Northern Command area of operations from July to November 2012. With the unit focused on supporting the Defense Chemical, Biological, Radiological, and Nuclear Response Force (DCRF) and Command and Control Chemical, Biological, Radiological, and Nuclear Response Element (C2CRE) missions, plus planning for a deployment to the U.S. Central Command area of operations, the 19th Engineers faced the challenge of balancing multiple mission requirements. Although this did not present issues that could not be overcome, it did result in some challenging moments.



Photo by Mary Markos, USACE, St. Louis District

Members of JTF Pump removed an average of 750,000 to 1 million gallons of water per day in the week following Superstorm Sandy.

On 29 October 2012, the battalion received an order placing it on alert to deploy within 24 hours to Joint Base McGuire-Dix-Lakehurst, New Jersey, and prepare to provide disaster relief support in the aftermath of Superstorm Sandy. The engineers prepared to deploy over the next 96 hours, working with Fort Knox installation support agencies while awaiting the execution order from U.S. Forces Command. During this process, a number of gaps in deployment preparations were revealed. One issue was cycling multiple units through the Soldier readiness processing center. The 15th Engineer Company had been the only 19th Engineer Battalion unit sourced against the DCRF mission for the previous 12 months, and the assumption was that it would be the first unit used in civil support missions. Therefore, the battalion had only focused on conducting Soldier readiness processing for the 15th Engineer Company every 90 days. With the assistance of the Fort Knox agencies, the battalion was able to complete these requirements quickly. Also, the battalion was directed to not bring heavy engineer equipment, which eventually hindered access clearance operations.



Photo by Mary Markos, USACE, St. Louis District

An Air Force member of JTF Pump helps clear water from Breezy Point, New York.

The 19th Engineer Battalion received a verbal order to deploy on 1 November, which was followed by a written order the following day. This final order did not include the



The storm's tidal surge devastated Breezy Point.

15th Engineer Company, but did direct the 76th Engineer Company to deploy. An advance party of seven Soldiers, including the battalion commander, deployed from Fort Knox on an aircraft provided by the U.S. Army Corps of Engineers (USACE), North Atlantic District. The party met with leaders from Joint Task Force (JTF) Sandy and USACE, conducted reconnaissance in New York City, and established life support for follow-on forces.

The main body deployed on 3 November. Convoy commanders carried maps that noted the locations of maintenance support activities and fuel stations along the route. Overnight stopping points were selected along the route, with the understanding that convoy commanders would make the final decisions about where to stop, based on the state of their convoy. The convoys traveled for 2 days to reach Joint Base McGuire-Dix-Lakehurst and faced few maintenance issues along the way.

By the time the convoys arrived at Joint Base McGuire-Dix-Lakehurst, the advance party had coordinated with installation agencies to set up joint reception, staging, onward movement, and integration in-processing. Elements of Headquarters, Headquarters Company, and the Forward Support Company then traveled to Fort Hamilton, New York, to link up with the battalion commander, set up the joint tactical operations center, and establish mission command.

The mission command relationship for this operation was unique. JTF Sandy was a dual-status command, led by the commander of the 53d Troop Command, New York Army National Guard. JTF Pump, led by the 19th Engineer Battalion commander, served as a subordinate element of more than 600 Soldiers, Marines, Sailors, and Airmen. In addition to the elements from the 19th Engineer Battalion, units included the following:

- 86th Engineer Dive Team, U.S. Army.
- 401st, 410th, and 431st Quartermaster Teams, U.S. Army Reserve.
- 11th, 28th, 366th, and 633d Civil Engineer Squadrons, U.S. Air Force.
- 823d RED HORSE[1] Squadron, U.S. Air Force.
- Joint Communication Support Element, U.S. Air Force.
- Mobile Dive and Salvage Unit 2, U.S. Navy.
- Naval Marine Construction Battalion 5, U.S. Navy.
- 8th Engineer Support Battalion, U.S. Marine Corps.

Mission command issues presented the most immediate difficulty on arrival at JTF Sandy. The number of organizations and the speed at which they arrived conspired to create an environment without clear lines of authority. This was apparent with civilian and military organizations. Many organizations, at all levels, called the JTF Pump operations center directly to request reports, rather than using appropriate chains of command to gather information. Tactical missions were received from the USACE, North Atlantic District, even though JTF Pump was never officially task-organized under its control. Another mission command issue was the creation and enforcement of consistent reporting requirements with subordinate units from different Service cultures. This made tracking operations during the first days challenging.

JTF Pump also confronted the challenges of legal restrictions on the use of military personnel for recovery work. They were not permitted to conduct debris clearance operations or assist citizens inside their homes unless the work was tied to an official mission requirement with the presence of civil authorities. JTF Pump leaders had to inform communities of these constraints so that there was a shared understanding of what tasks Service members could and could not perform.

Pumping operations were conducted throughout three of the five boroughs of New York City and in communities on Long Island, New York, and in New Jersey. Many of the dewatered buildings belonged to the New York City Housing Authority, including Redfern Housing Complex in Far Rockaway and Red Hook housing projects in Queens. JTF Pump discovered that more control was needed on some of these tasks, since engineers frequently received only general descriptions of the buildings to be dewatered and sometimes ended up dewatering the same buildings multiple times due to reflooding.

Mobile Dive and Salvage Unit 2 conducted operations in the basement of One World Trade Center (commonly known as Freedom Tower), removing more than 770,000 gallons of water and enabling contractors to restart work. The 86th Engineer Dive Team helped the New York City Fire Department and the Port Authority of New York and New Jersey conduct dewatering operations in the Port Authority Trans-Hudson station and tunnel in Jersey City. The team also conducted pier inspections and repair with Mobile Dive and Salvage Unit 2 at the U.S. Coast Guard, Battery Park Pier C facility in New York.

The wastewater treatment plant for Long Beach, New York, suffered a failure of its main intake pumps. Crews of Air Force civil engineers rotated through the plant, conducting 24-hour operations to pump 3,100,000 gallons of water and prevent flooding.



Photo by Mary Markos, USACE, St. Louis District

JTF Pump personnel helped speed access to communities damaged by the storm.

The largest continuous project for the Soldiers, Marines, Sailors, and Airmen of JTF Pump was the operation at Breezy Point in Queens, New York. This peninsular community had been flooded by the tidal surge of Superstorm Sandy. Fires had broken out in the aftermath and destroyed more than 90 homes. As operations in other areas wound down, this project became the focus for task force efforts. The project required extensive access clearance operations to open narrow walkways throughout the community. Individual pumping sites were small and were far from drainage locations. This required frequent pump moves and the elaborate chaining of hoses to remove standing water from public areas. Access clearance operations were slowed noticeably by the earlier order



The 76th Engineer Company convoy gathers in front of the Brooklyn Public Library.

to leave heavy engineer equipment back at Fort Knox. The Army 76th Engineer Company and Marine 8th Engineer Support Battalion persevered in conducting the operations in conjunction with the New York City Department of Sanitation, moving debris from access ways to parking lots where Department of Sanitation loaders and trucks could transport it to landfills. More than 1,000 tons of material were moved in this fashion. The terrain presented unique opportunities for the Marine and Navy components of JTF Pump, which conducted 2 days of amphibious landings on the beaches at Breezy Point to move their personnel and equipment into position. They removed more than 8,000,000 gallons of water during 9 days of operations in this area.

After 15 November, there were no further requirements for pumping missions. Units began retrograde operations back to their home stations. The 19th Engineer Battalion traveled back to Joint Base McGuire-Dix-Lakehurst to regroup and prepare for the long convoy back to Fort Knox, returning safely on 19 November. The military personnel of JTF Pump acquitted themselves well. More than 13,200,000 gallons of water and 1,300 tons of debris were removed from public areas in New York and New Jersey. Military forces expended 10,500 man-hours in successful joint operations to support the citizens of the Nation in their hour of need.

Endnote:

[1]Rapid Engineer Deployable Heavy Operational Repair Squadron Engineer.

Captain Prusi is the assistant training officer for the 19th Engineer Battalion. He holds a bachelor's degree in civil engineering from Michigan Technological University and a master's degree in civil engineering from Missouri University of Science and Technology in Rolla. He is a graduate of Army Officer Candidate School, the Engineer Officer Basic Course, and the Engineer Captains Career Course.



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.

Staff Sergeant Rayvon Battle, Jr.	38th Engineer Company, 4th Stryker Brigade Combat Team	Joint Base Lewis-McChord, Washington
Sergeant Brett E. Gornewicz	444th Engineer Company, 479th Engineer Battalion	Oswego, New York
Specialist Ryan P. Jayne	444th Engineer Company, 479th Engineer Battalion	Oswego, New York
Sergeant First Class Darren M. Linde	818th Engineer Company, 164th Engineer Battalion	Williston, North Dakota
Specialist Tyler J. Orgaard	818th Engineer Company, 164th Engineer Battalion	Williston, North Dakota
Private First Class Markie T. Sims	38th Engineer Company, 4th Stryker Brigade Combat Team	Joint Base Lewis-McChord, Washington
Staff Sergeant Dain T. Venne	444th Engineer Company, 479th Engineer Battalion	Joint Base Lewis-McChord, Washington



ENGINEERS SUPPORT U.S. BORDER PATROL

By Captain Sean T. Sullivan

From 4 May to 28 June 2011, the 2d Platoon of the 15th Engineer Company (Horizontal) completed a 1.5-mile section of road west of Nogales, Arizona, as part of efforts by Joint Task Force–North (JTF-N) to enhance border security. JTF-N is a federal interagency program that coordinates efforts between agencies such as the Department of Homeland Security and the Department of Defense. The U.S. Border Patrol is part of U.S. Customs and Border Protection, which falls under the Department of Homeland Security. The Department of Defense supplies military units for nonpolicing ventures in support of the Border Patrol. This article focuses on the interactions that the platoon had with various civilian and military personnel and how they contributed to the stress and relief of the 2-month mission.

The platoon arrived after three previous rotations had cut the rough length of the road, added two large culverts, emplaced riprap along the sides of the road and in spillways, and constructed a low-water crossing. In 2 months, the platoon would have to complete a large task list, which included emplacing another culvert, completing a long stretch of cut-and-fill operations, emplacing more riprap, finishing a cattle guard, and laying an experimental road surface known as *soil-cement*. The latter had never been used to surface a road, and the subject matter experts had little idea how to lay the material so that it would hold up to wear and tear. These tasks had to be accomplished in a short time while maintaining safety and remaining environmentally conscious.

The proposed work schedule called for six 10-hour days, with the seventh day reserved for "reset." Temperatures were in the 90s, and the 10-hour limit to the workday was meant to prevent fatigue, which could lead to reduced productivity and increased safety risk. Since the location was on the border, danger from drug traffickers at night was also an issue. The 10-hour workday would keep the platoon on the site during safer daylight hours. Morale was a concern because of the work schedule, but the seventh day of rest would give Soldiers a chance to enjoy Army morale, welfare, and recreation trips in the surrounding area. From the beginning, this plan was questioned by one of the JTF-N mission planners. The platoon Soldiers were called on to work 10 days straight to get ahead on the project. A compromise reduced the planned reset day from a full workday to a half day, and the platoon managed to stay on schedule for the remainder of the project with little overtime. It is important to realize that increasing hours may not always increase productivity, but rather lower morale and increase fatigue.



A load of soil-cement is ready to be spread along the road.

Farthest east on the road was the culvert, which became the main effort of 3d Squad. The culvert served as good training since the Soldiers had to dig the trench, compact the bottom, lay the large concrete pipe, compact the fill, and emplace riprap at the entry and exit sides to encourage water to flow into the culvert so that it would not undermine their work. Keeping the pipe straight was the hardest part of laying the culvert. The squad removed and reset the pipe once because it bowed slightly, which would have hindered the free flow of water. Early on, the platoon reviewed the plans and saw that the culvert would divert water more than 90° from the original direction of travel. The Soldiers voiced objections to a representative of the engineer firm in charge of the project. However, the firm decided to stick with its plan and the platoon complied, adding a spillway in the direction of original travel so that excess water would flow smoothly away from the culvert rather than collect and possibly damage the roadway.

West of the culvert, 1st Squad was responsible for bringing a 300-meter stretch of road up to grade. The Border Patrol specifies that traffic be able to travel at 25 miles per hour, which required the squad to cut and fill. The process proceeded slowly, but successfully, maintaining a high degree of compaction along most of its length. A 50-meter stretch of road lost its compaction due to water leaching from higher up the road, so the squad had to work overtime to bring it back to standard.



Engineers lay ArmorFlex® at the low-water crossing.

Once the road itself was at grade, well-placed drainage features to prevent erosion had to be finished. Arizona's monsoon rains in the summer and fall can be severe enough to create flash floods. Drainage features included crowning the road on straightaways. As the road came out of a curve and continued downhill, the water

would sheet down the road itself. To catch the water before it could gain speed and damage the road, a broad-based dip caught and drained it off the side. Ditches on one or both sides ran along most of the road. They required riprap to prevent erosion from compromising the roadway. Border Patrol agents had reported problems with suspects throwing rocks at them from the ditches and requested that the platoon seal the riprap together with concrete slurry. A team of Soldiers from the 76th Engineer Company (Vertical) and the 538th Engineer Detachment (Concrete) completed that task.



Soldiers pour concrete, using the cattle guard to prop the form.

They also worked on a cattle guard on the canyon floor, which had been partially completed by Marines in the preceding rotation. The Marines had poured a concrete low-water crossing on the east side of the cattle guard, but none on the west side. The large trucks needed to pour soil-cement on the west end of the road could only gain access to it by way of the low-water crossing. However, placing concrete on the unfinished west side would take too long to cure and there was no alternate access. Instead, the mission planner provided ArmorFlex concrete blocks that can be set on the ground to protect it from erosion. ArmorFlex proved to be a valuable asset; it would hold up to heavy traffic, and the platoon was able to lay the sections within a day.



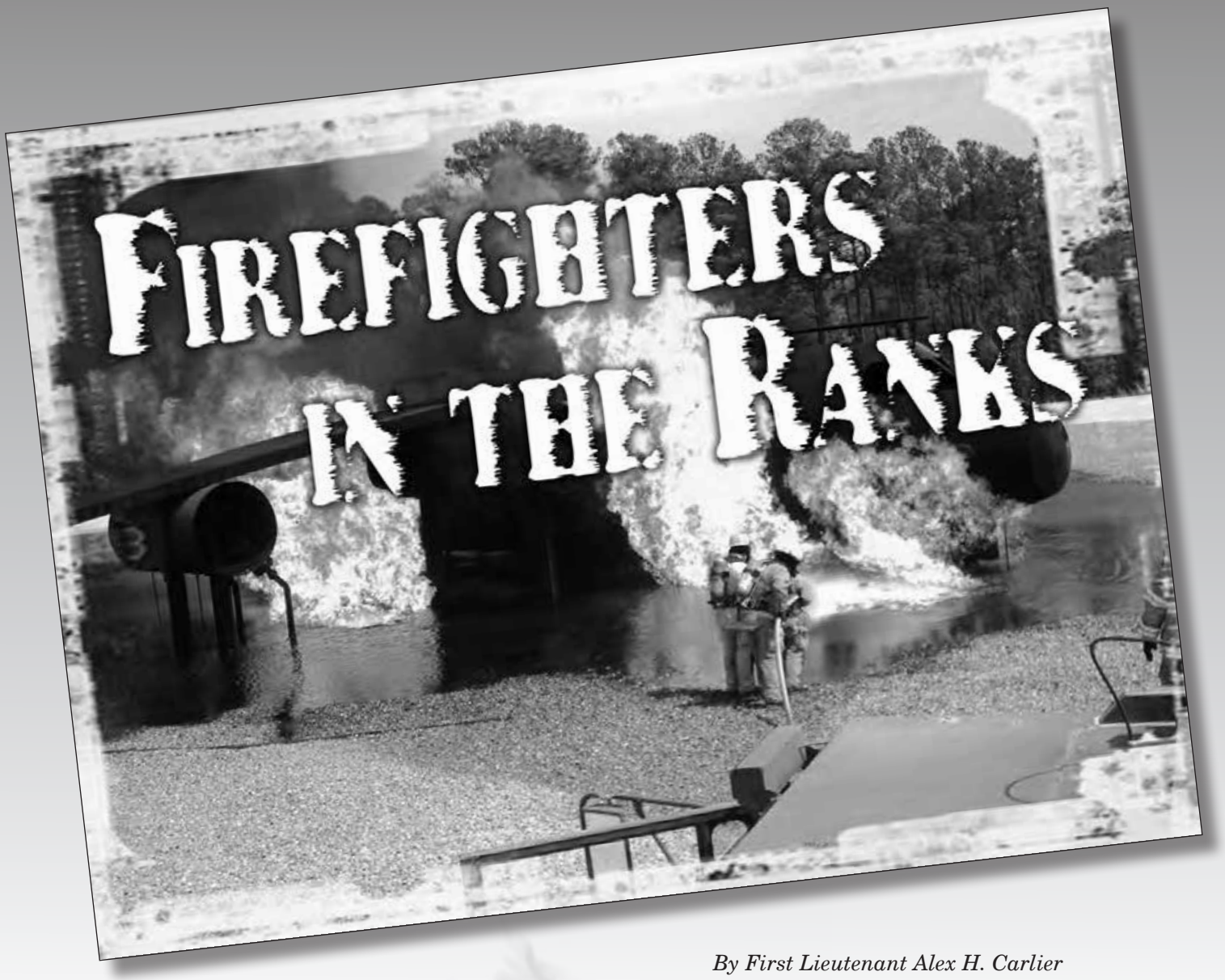
Soldiers prepare to seal a section of culvert.

Soldiers from 2d Squad laid the experimental soil-cement along the entire length of road. This mix of aggregate and a small amount of cement had previously been used only to enhance fill strength. Finding the correct moisture content for the mix was critical. The first batch was too moist and came out as a sludge that was nearly impossible to work with. A second load with too much water created so much suction that the material would not pour from the dump truck, nearly setting up in the bed of the truck. Even after finding the correct moisture content, the batch plant had recurring mechanical breakdowns that delayed surfacing for 4 weeks. When the plant finally began functioning properly, the Soldiers developed a rhythm that allowed them to lay out the lanes quickly and meet the project deadline.

In 2 months, the platoon—with augmentation from the 76th Engineer Company (Vertical) and 538th Engineer Detachment (Concrete)—completed a road that was vital to the mission of protecting the Nation's borders. Though the road itself was only a small portion of the ongoing effort, it served as a great training tool for the platoon. The Soldiers who signed up to be engineers did so in part to exercise engineering skill. Border defense projects are a great opportunity for engineer units in the United States to exercise their technical skills while gaining knowledge and understanding for future operations here or abroad.

Captain Sullivan is the unit movement and safety officer for the 19th Engineer Battalion, Fort Knox, Kentucky. He holds a bachelor's degree in history from the University of California, Davis, and completed the Engineer Basic Officer Leader Course at Fort Leonard Wood, Missouri.

Firefighters in the Ranks



By First Lieutenant Alex H. Carlier

The Army firefighting military occupational specialty (MOS) 12M is organized into very small, specialized, and effective teams that are fragmented across the Engineer Regiment and the Army. As a result, this has created organizational and operational challenges to the various firefighter mission sets. Also, the current firefighting force structure has created ample operational leadership experience at the junior noncommissioned officer (NCO) level, but very little for senior NCOs. Recent experience as the commander of the 95th Engineer Detachment, the only active duty firefighting headquarters detachment in the Army, offers insights on understanding the force and improving its operational capabilities.

Army Firefighters

Army firefighters transferred from the U.S. Army Quartermaster Corps to the ranks of the Engineer Regiment on 4 December 1941, just 3 days before the attack on Pearl Harbor. Firefighters possess unique skill sets and equipment that allow them to breach obstacles and manipulate the tactical terrain. Their mission is to provide fire prevention and protection, aircraft crash rescue, natural wildfire response, and hazmat response within a theater of operations. Also, firefighter detachments are authorized the equipment to accomplish this mission.

There are currently 242 active duty firefighters; most of the Army firefighting force is in the Reserve Components. Army firefighters attend advanced individual training at Goodfellow Air Force Base, Texas. There, they train in a joint environment alongside Marine Corps, Navy, Air Force, and Coast Guard firefighters. They obtain nationally recognized certifications and MOS-specific certifications for the following:

- Firefighter I and II.
- Hazmat awareness and operations.
- Airport firefighter.



A heavy expanded-mobility tactical truck-based water tender undergoes a test at Pope Field, North Carolina.

The Louis F. Garland Department of Defense Fire Academy at Goodfellow Air Force Base also teaches 16 advanced fire courses that are internationally accredited by the International Fire Service Accreditation Congress. Most certifications are permanent and follow a Soldier who leaves the Army and serves in a civilian capacity.

Firefighters can be assigned to three different types of operational units—

- A firefighting headquarters, which is authorized 3 personnel.
- Ten firefighting detachments (also called a firefighting team or fire truck), which are each authorized 7 personnel.
- Nine firefighting detachments, which are each authorized 7 personnel, within a modular ordnance company.

If firefighters are assigned to a modular ordnance company, they may serve under leaders who are not engineers. Because of the unique structure and lack of upward mobility, many of these contain more firefighters than authorized. Often, these additional personnel are attached to a company level headquarters section to perform non-MOS-related tasks. Although this can be beneficial to Soldiers in terms of staff experience, it does come with risks, particularly in developing individual firefighting task proficiency and maintaining perishable skills. If Army firefighters are assigned to nonstandard positions, it is recommended that they work into a local firefighting unit training program in order to maintain MOS proficiency.

In garrison, firefighters can work for the local installation fire department or department of emergency services (DES) to maintain their skills. Unit leaders should meet with the DES fire chief to establish a training program. This relationship between the unit commander and the installation fire chief is vital to obtaining a vibrant training program. Typically, a memorandum of agreement between the unit and DES is required to establish the policy, procedures, and sharing of resources. Additionally, the senior NCO in the unit should be the conduit for training and resources and for communicating with the DES. This provides the NCO with a more senior role in implementing the training program and builds upon leadership and management skills.

Training

Individual tasks. Like any Soldier, Army firefighters require MOS-specific training and firefighting equipment maintenance. Table 25-5, Army Regulation (AR) 420-1, *Army Facilities Management*,[1] shows which certifications are required for each duty position. Note that to be a licensed operator of a tactical firefighting truck and heavy expanded mobility tactical truck-based water tender, a Soldier must have the proper International Fire Service Accreditation Congress-approved certifications and must have completed driver training with a master driver who is licensed on the fire apparatus. Also note that in accordance with Department of Defense Instruction 6055.06, *Fire and Emergency Services Program*[2] (which guides firefighting doctrine for all military services), Soldier firefighters must possess certifications for their rank and duty position within 2 years or face MOS reclassification. Each firefighter skill level corresponds with an annual refresher training requirement. The frequency for each firefighting task can be found in Table 25-6, AR 420-1.

Collective Tasks. Sergeants and staff sergeants in MOS 12M do not often conduct their skill level tasks when

supporting a local installation because these positions are generally held by Department of Defense civilian firefighters. The best way to validate equipment and firefighting task competency is to conduct collective training. The use of training areas for these events can be coordinated with the assistant chief of training in the installation fire department. It is important for detachments to take advantage of every opportunity to conduct collective training. A best practice would be to conduct one event per quarter. Some examples include, but are not limited to—

- Structural burn.
- Airport firefighting burn.
- Vehicle extrication.
- Confined-space training.
- Rescue operations.

The Combined Arms Training Strategy task template for firefighting teams and headquarters is available on the Army Training Network at <https://atn.army.mil/dsp_CATSviewer01.aspx>.[3]



An Army firefighter demonstrates wear of turn-out gear.

Balancing firefighting operations with Army training is a manageable leadership challenge if there is a plan in place and it is agreed to in a memorandum of agreement between the unit and the installation fire department. Experience shows that it is best to establish a standard training calendar which also fits into the installation fire department operational schedule. A best practice is to allow Soldiers to cease installation fire department duties for 2 weeks every quarter to conduct individual warrior tasks, leader development training, and collective MOS training.

Maintenance

The bottom line is that tactical firefighting equipment is unique to the Army. A common after action review comment from firefighting detachments following deployment is that there were not enough personnel trained to maintain the water pumps on the fire apparatus. Unfortunately, there is no longer a military course to train firefighters in water pump maintenance (a task that was a requirement during Hurricane Sandy recovery). However, it is possible to send them to a manufacturer training course. It is also recommended that mechanics from forward support companies who support firefighters be trained on fire apparatus.

Uniform

Army firefighters are authorized to wear a modified Army combat uniform while performing official duties. A distinctive unit fire department identification badge is authorized for wear; it is centered on the left pocket of the uniform. Firefighters may also be identified with items such as a brassard on the left sleeve and a black cap with the words "Fire Department" embroidered in the center. Army firefighters are under the tactical control of their station captain (a Department of Defense civilian) while on duty in the fire station, and the modified uniform serves the purpose of keeping them distinguishable from other Soldiers on the installation. Army firefighters should wear flame-retardant clothing while on duty, including a flame-retardant Army combat uniform and a modified physical fitness uniform (specific design according to local policy). The clothing must contain a majority of natural fibers to meet National Fire Protection Agency standards.

Areas of Emphasis

Manning. Transfer more positions from the force generation pool into the operational U.S. Army Forces Command pool. There are 19 sergeant first class positions in MOS 12M, yet only one of them is in a U.S. Army Forces Command unit. Since the MOS has few senior NCO leaders, the Engineer Regiment must understand the role of firefighters in an effort to improve their leadership opportunities and operational expertise.

Missions. Review joint operations plans, and determine where 12M Soldiers can be employed to support wartime, contingency, and disaster relief operations. Currently, the headquarters is working with the National Interagency Fire Center to determine where Army firefighters can support future wildfire operations as part of the U.S. Northern Command plan.

Meal Plan. Authorize basic allowance for subsistence to all firefighters. Army firefighters typically work a 24-hour-on/24-hour-off schedule. Every firefighter is assigned a "Kelly Day," which is a day off that gives each firefighter a 2-day "weekend" periodically. Given the usual DES obligation to work 24-hour shifts, which prevents Soldiers from using a dining facility, all firefighters on a team should be authorized basic allowance for subsistence.



Firefighters battle a blaze in this historical photo from the Phillipines.

Medical. Ensure that firefighters with duty-limiting medical profiles get beneficial training and experience with the installation fire department. For example, Army firefighters on profile can conduct visual inspections of facilities and buildings for the installation fire prevention office.

Conclusion

The Army firefighting capability is at a crossroads of operational capability and leadership expertise. The future is likely to feature civilian contract firefighters instead of uniformed Soldiers in deployed environments. Without innovative ideas and a renewed emphasis on firefighter operations, deployable readiness will decrease along with a lack of training opportunities. Moreover, it will become increasingly difficult to retain quality personnel as other opportunities present themselves. It is time to aggressively integrate firefighters into military and agency operational plans to provide contingency mission sets such as chemical, biological, radiological, nuclear, and high-yield explosives response. It is also time to review the Army firefighter stationing plan to find more effective ways to maintain mission command of the force. A more centralized force would improve overall training and readiness, reduce infrastructure costs associated with training, and develop a more robust deployable firefighting capability. For example, if an installation with a firefighting headquarters gained three 7-person detachments, it could serve as a joint, deployable hazmat technician team and maintain contingency search and rescue capabilities for a global response force mission. By developing better ways to train and employ the Army's firefighters, a more robust and effective force will be available to meet future challenges.

Endnotes:

[1]Army Regulation 420-1, *Army Facilities Management*, 12 February 2008.

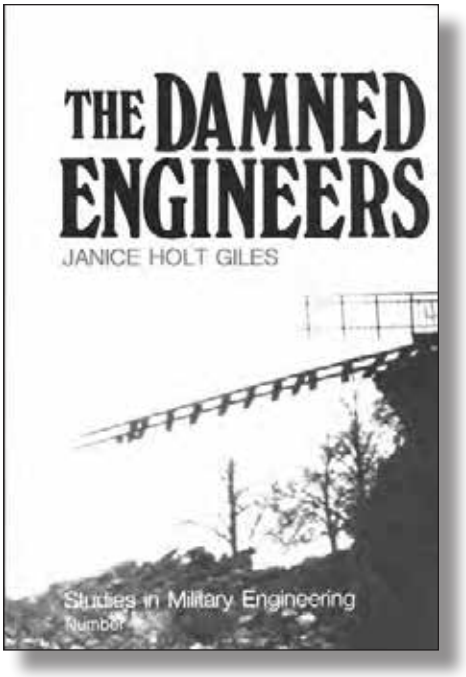
[2]Department of Defense Instruction 6055.06, *DoD Fire and Emergency Services Program*, 21 December 2006.

[3]Army Training Network, <https://atn.army.mil/dsp_CATSviewer01.aspx>, accessed on 14 January 2013.

First Lieutenant Carlier is the officer in charge of the intelligence support team for the 618th Engineer Support Company (Airborne), Fort Bragg, North Carolina. He previously served as a platoon leader for the 100th Engineer Company (Topographic) and as commander of the 95th Engineer Detachment (Firefighting). He holds a bachelor's degree in construction systems management from The Ohio State University.

Book Review

Late in 2012, Brigadier General Peter A. (Duke) Deluca, commandant of the U.S. Army Engineer School, approved his "Engineer Commandant's Reading List" as a program to promote professional development. The list includes a variety of books on history, politics, and culture that are appropriate for Soldiers and civilians in the Engineer Regiment. This book review section will be a feature in each issue of Engineer. Authors will summarize the content of the books on the reading list, and they will point out the key lessons to be learned from those books. Readers who wish to read a book and submit a review should contact Dr. David J. Ulbrich, Engineer School command historian, at <david.j.ulbrich.civ@mail.mil>. The list is located at <http://www.wood.army.mil/usaes/library/documents/ENGR_CMDT_READING_LIST_2012.pdf>.



The Damned Engineers (Studies in Military Engineering, Number 1), by Janice Holt Giles, U.S. Army Corps of Engineers, 2d Edition (1987), ASIN B000N8US56, $49.95 (Paperback)

The Damned Engineers is a narrative account of the 291st Engineer Combat Battalion actions during the Battle of the Bulge. Histories of this pivotal engagement in December 1944 frequently focus on the stubborn defense of Bastogne, Belgium. However, as the author points out, other no less heroic stands were made on the northern shoulder of the Bulge. Mrs. Giles gives a dramatic account based on extensive firsthand sources and interviews. It not only retells what the 291st accomplished, but also describes who these men were and what motivated them. The author thoroughly explores the perspective of *Waffen–SS* Lieutenant Colonel Jochen Peiper in his rapid advance. To this she adds a detailed description of the slaughter of American prisoners committed by Peiper's soldiers and the direct impact it had on the 291st. The 291st Engineer Combat Battalion so frustrated the German commander during his offensive that supposedly he swore in frustration, "The damned engineers! The damned engineers!"

On 16 December 1944, the Germans launched a desperate offensive through the Ardennes Forest in Belgium that caught the Allies by surprise. The offensive drove a wedge almost 70 miles deep into the Allied lines before the advance was halted. Peiper, commanding the German unit *Kampfgruppe Peiper*, led the attack on the northern shoulder of the wedge. This area saw some of the most aggressive German attacks, spearheaded by the *Waffen–SS*. During 17–18 December, the engineers of the 291st found themselves facing this overwhelming armored force. The desperate nature of the campaign can be seen in German atrocities committed along the way, most infamously a massacre where nearly 100 American prisoners of war were killed near the town of Malmedy. While initially shocked by the scale of the offensive, the Allies poured reinforcements into the battered front to stem the advance. During those critical days, the 291st stopped the German advance along the northern shoulder.

At the outbreak of the battle, the three line companies of the 291st Engineer Combat Battalion operated sawmills to prepare for the harsh winter and maintained roadways across an area several miles wide behind the front line. The rapid advance of Peiper's unit of 5,800 men and 100 tanks forced the 291st to set up hasty defenses along the entirety of Peiper's route. The 291st commander, Lieutenant Colonel David E. Pergrin, recently promoted and in his late twenties, organized the defense of the key town of Malmedy with a single engineer company until reinforcements could arrive. Similarly, the other two companies worked independently to slow the German advance westward. More often, they fought as squads or platoons. The engineers manned

roadblocks, laid mines and abatis, demolished critical bridges, and fought as infantry when needed. In the end, they were able to help slow the advance enough that the Germans could never achieve the decisive breakthrough they sought.

One of the more memorable moments of the book occurs when an engineer detail of about a dozen men from A Company worked to wire and guard the Habiemont Bridge directly in the path of the German advance. The author gives exceptional detail by recalling the assigned tasks of the Soldiers, from which man was positioned as security to who was wiring the bridge and with what charges. Within 2 hours, with night fast approaching, triggerman Corporal Fred Chappin and Lieutenant Alvin Edelstein spotted the advancing German Tiger II tanks through the trees. Unfortunately, the Americans were simultaneously seen by the approaching armor. Corporal Chappin worked quickly to blow the bridge and escape, but not before a machine gun bullet cut his cartridge belt as he maneuvered back to the detail.

Peiper's tanks did not get any farther, but the American defense of the bridge site by this detail didn't end there. In order to protect the site, Lieutenant Edelstein sent Soldiers armed with daisy-chained mines to cover secondary roads in the area. In an act of individual courage, Private Johnny Rondenell waited until an approaching German reconnaissance patrol was nearly on top of him before he sprinted across the road directly in front of the patrol, dragging a string of mines behind him. He destroyed the first vehicle and, thereby, disrupted the patrol. Similar accounts and actions fill the pages of the book as Mrs. Giles seamlessly pieces together individual stories to provide a continuous and gripping narrative of the battle.

In order to write this effective narrative, the author relies heavily on the personal accounts and correspondence of members of the 291st. She was the widow of Sergeant Henry Giles, who served in the battalion, and she ably drew on the memories of her husband and his fellow servicemen for the details that fill the book. In her comments at the end, Mrs. Giles makes an effort to note where she could not corroborate some of the personal accounts. In such cases, she relies on a single source for portions of the narrative. Her list of personal references within the battalion is impressive, and she made an effort to confirm these accounts with outside sources. These include official correspondence, after action reports, and unit histories as well as German accounts taken after the war. There are no endnotes and only a few footnotes in the book for readers who want to research further. Giles also draws on other books to fill in the gaps as the battle unfolds, most notably citing John S.D. Eisenhower's *The Bitter Woods*[1] numerous times.

Through the author's narrative style, the reader leaves with a greater appreciation of the efforts exerted by the 291st to accomplish its missions effectively. The Battle of the Bulge is often synonymous with endurance under harsh conditions, but that is only a piece of the 291st experience. The unit conducted an impressive defense through the initiative it gave to small-unit leaders. In the immediate disruption of communications by the German offensive at the outset, the disparate companies, platoons, and squads acted independently without formal orders. The small-unit leader flexibility to make quick decisions derived from the culture in place among the 291st Soldiers and their understanding of the commander's intent. The engineers proved their versatility through the numerous tasks they performed. During the course of the campaign, they abandoned their general engineering work of road repair and sawmill operations to conduct extensive countermobility operations. This rapid change of mission included the demolishing of bridges, laying minefields and abatis, and emplacing roadblocks and other obstacles. During the entire campaign, the 291st Engineers also performed numerous mobility tasks, to include building Bailey bridges, timber trestle bridges, and the first and longest float bridge across the Rhine near Remagen. To display this expertise across such a wide array of engineering tasks and to accomplish all these tasks effectively was a tribute to their training and discipline.

Lieutenant Colonel Pergrin held the unit to high standards; and the battalion leaders possessed an unstated tactical proficiency and mental agility that should be developed in all leaders, regardless of rank. While far from perfect, the 291st leaders made few, if any, major mistakes conducting their defense. The reader will gain a clear appreciation for the overall competence of the unit leadership. *The Damned Engineers* is an outstanding lesson in the mental toughness and physical stamina that engineer units should bring to a fight. It will be an easy read for any engineer leader who is seeking perspectives on conventional warfare to provide better training or simply for personal development.

Endnote:

[1]Eisenhower, John S.D., *The Bitter Woods: The Battle of the Bulge*, G.P. Putnam's Sons, New York, 1969.

Review by Captain Wesley J. Hunnell. Captain Hunnell is a student in the cooperative degree program sponsored by Missouri University of Science and Technology, Rolla, Missouri; and the 554th Engineer Battalion, Fort Leonard Wood, Missouri. He holds a master's degree in military history from Norwich University, Northfield, Vermont; and a bachelor's degree from Texas A & M, College Station, Texas.



Operation Mountain Blade



By Staff Sergeant Derek M. Smith

The Salang Pass is more than a roadway in Afghanistan; it is an economic and cultural symbol to Afghans. The battered roadway through Parwan Province is the primary route between northern and southern Afghanistan, crossing the treacherous Hindu Kush mountain range. It is the only pass in the area to remain in use the entire year. Nearly all commerce for the capital city of Kabul and all other cities in the east, such as Bagram and Jalalabad, travels this route. An estimated 5,000 vehicles travel daily through the winding mountain pass.

With little maintenance since it first opened in 1964, the Salang Tunnel has slowly slipped into a rutted path of decay. The continuous risk of closure threatened the economic and social lifeline to southern Afghanistan. After decades of conflict and neglect, Afghan and North Atlantic Treaty Organization (NATO) leaders concluded that something had to be done. The International Security Assistance Force committed to assist Afghanistan with repairs before winter. The engineers of the 411th Engineer Brigade, Joint Task Force (JTF) Empire, were tasked with the mission; and Operation Mountain Blade (OMB) was born.

The Road Oft Travelled

The Salang Tunnel reduces travel time between northern and southern Afghanistan from 72 hours to 10 hours and cuts approximately 300 kilometers from the trip. The tunnel is 2.6 kilometers long at an altitude of approximately 3,400 meters above sea level, making it one of the highest road tunnels in the world.

The Soviet Union and Afghanistan developed the Salang Road jointly, starting in 1955. Later it was a crucial military link through the country during the Soviet-Afghan war. The natural dangers inherent in the pass, such as avalanches and extreme weather, have been compounded over the years by military actions and accidents. A tunnel fire in 1982 killed more than 170 Soviets and Afghans. Due to combat between the Northern Alliance and the Taliban throughout 1997 and 1998, the ventilation system and entrances to the tunnel were destroyed, resulting in the closure of the tunnel to all but foot traffic. It was not reopened until January 2002, after a joint effort by Afghanistan, Russia, the United States, and other countries cleared the pass of mines and debris. The tunnel may become pitch black inside, and the air can become filled with deadly carbon monoxide. While there are other routes through the Hindu Kush, the tunnel is the quickest, most efficient road and deemed safest from insurgent attacks.

"The Salang Tunnel is a strategic piece of key terrain," explained the JTF Empire chief of operations and Afghan National Army development officer. "It's the focal point of the northern distribution network. It's of substantial interest to [NATO and Afghan forces]."

Traveling through the darkened length of the tunnel, travelers could see runoff water from the mountain seeping through holes in the 50-year-old walls. Pavement was worn into a bumpy, rutted path of mud in many parts. Depending on traffic volume, cars and trucks squeeze through, often with only inches to spare between a vehicle and the walls.

The Long Climb

The latest operation was initiated to enable the Afghan Ministry of Public Works (MoPW) to conduct emergency repairs of Highway One through the Salang Pass by providing equipment, materials, and technical advice. JTF Empire had a specific task—to assist in the repair of 400 meters of road inside each end of the tunnel and 200 meters outside each end of the tunnel for a total of 1,200 meters. The repairs were to be conducted as soon as possible to finish before the winter snows arrived. The purpose of the operation was to improve the road surface, which was in a serious state of disrepair. There were massive ruts and potholes running through the inside of the tunnel as a result of poor drainage. The road had been repaired over the years by placing concrete or overlaying it with asphalt in different spots. One of the biggest challenges of the operation was getting down to a solid base on which to rebuild the road.

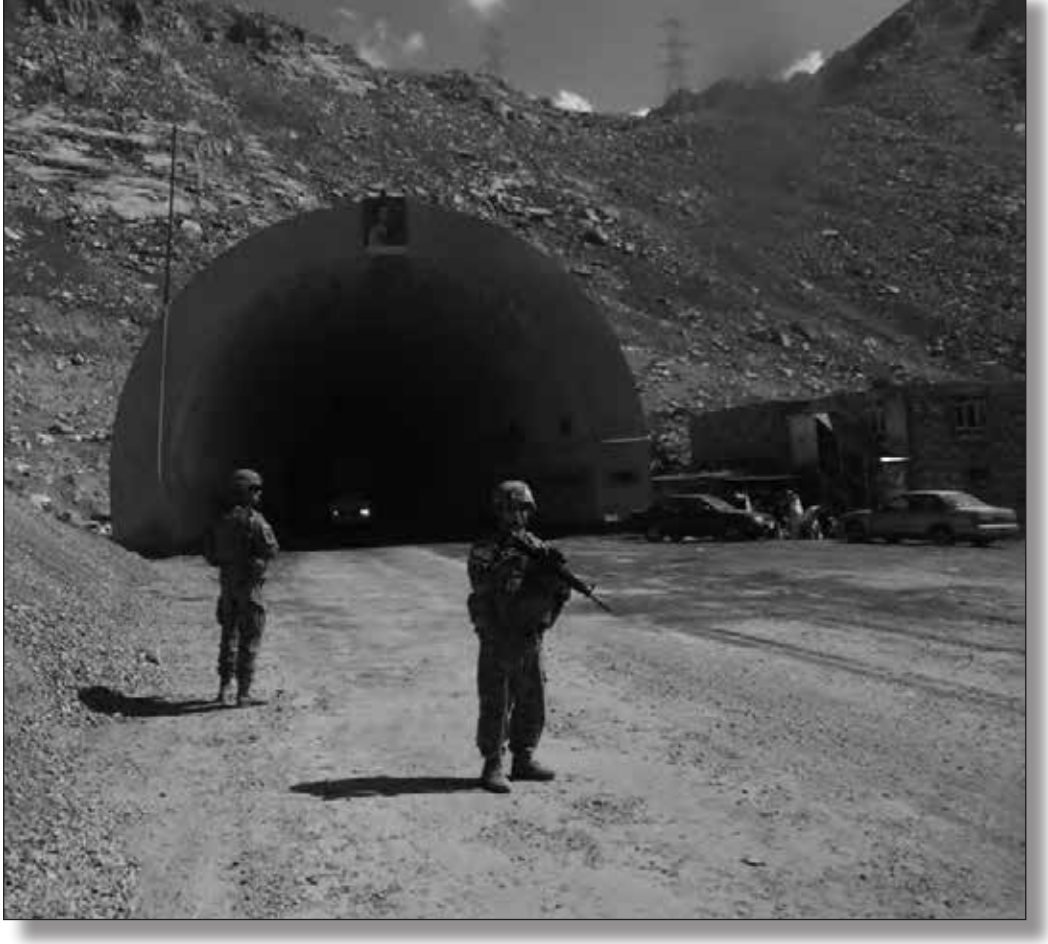
OMB is phase one of a $20 million, two-phase project to complete emergency repairs of the tunnel. Phase one was allocated $2 million, while phase two entails enduring repair of the road surface throughout the Salang Tunnel. The U.S. Army Corps of Engineers (USACE) has contracted with a civilian firm for phase two, which is to begin in the spring. Movement to the site for phase one began in August, and construction started on schedule on 1 September. The 605th Engineer Detachment Construction Management Team took the lead on the operation, which included elements of the 7th Engineer Battalion (Task Force Red Devils); the 1st Battalion, 142d Infantry Regiment (Task Force Hydra), assuming the security role; and the 10th Sustainment Brigade (Task Force Muleskinner) supplying logistical support. The operation was a collaboration between JTF Empire and Afghan engineers, with the U.S. Army providing equipment operators and horizontal engineers to train MPoW personnel to maintain the road. The Americans purchased gravel and heavy equipment, which was turned over to the Afghans.

Initial key leader engagements established guidelines on cooperation and equipment availability. In addition to the typical language barrier and the limited number of linguists, issues such as pay, liability, and equipment also hampered progress. Once OMB began, it became obvious that more construction assets would be needed. The Army purchased 17 pieces of construction equipment for use during the project and to enable the MoPW to maintain the road through the winter. The construction effort was hard on the equipment. The removal of multiple layers of potholed asphalt inside the tunnel resulted in worn and damaged equipment every day.

In such a remote location, communications became more critical than usual. The JTF Empire communications chief worked with a staff of two, then remained on site for the duration of the project to maintain the systems. Initially, communications were limited to radio and a satellite-based messaging system. A satellite data communications system providing secure and nonsecure data services, telephone capability, and secure video teleconference capability was



A Soldier stand watch outside a patrol base by the Salang Tunnel during Operation Mountain Blade.



Joint Task Force Empire Soldiers observe the area outside the north entrance to the Salang Tunnel.

added later. The system provided updates on project status, security-related information for force protection, and even morale and welfare support by helping Soldiers stay in touch with their families.

The Plunge Into Darkness

Due to the large volume of traffic though the pass, all construction was performed at night. Even with artificial light, visibility is limited during night operations, increasing risks and decreasing worker ability to maintain safety standards. The task force experienced minor vehicle accidents with the construction equipment, even with ground guides in use. No guardrails are present on the treacherous mountain pass, elevating the risk of a vehicle plunging over the edge.

Construction equipment was the most difficult obstacle that the task force had to overcome. Military and purchased equipment became nonmission-capable every night, presenting constant maintenance problems. Other issues included blown transmissions and alternators, dead batteries, failed fuel pumps, thrown tracks, broken windshields, broken cutting blades on graders, flat tires, civilian vehicle accidents, and severed fiber-optic cables. By working nonstop, OMB Soldiers kept the project from falling behind schedule.

Earlier repairs had used local materials extracted from the surrounding mountains, mostly dirt and rocks that weren't suitable for a high-traffic road. JTF Empire arranged for the delivery of high-quality aggregate to establish an adequate subgrade and a maintainable road surface. More than 800



Vehicles pass within inches of each other in the Salang Tunnel.

truckloads of base course and road surface aggregate, totaling 15,000 cubic meters, were delivered. Some was used for immediate repairs before winter, while the remainder was stockpiled for use in phase two. Unusable road surface was removed from the work areas, averaging 10–20 inches in depth. An aggregate road surface was then laid down. An asphalt transition ramp was constructed to merge the concrete road surface with the existing road surface of the tunnel, and severe potholes were repaired with asphalt.



Because of heavy daytime traffic, most road repair was performed at night.

The engineers worked throughout the night in and around the tunnel, pausing regularly to allow through traffic. A continual stream of authorized traffic such as emergency vehicles, wedding and funeral processions, government officials, and vehicles supporting other construction efforts had to use the tunnel. Unauthorized vehicles also plagued construction efforts, since no strict limits had been established by the ministry traffic control personnel, and vehicles could not be allowed to accumulate at the construction sites. Traffic and darkness were not the only adversaries to the engineers. The elements and environment exacted their toll on the Soldiers as well. The elevation resulted in many cases of altitude sickness and exposure.

On Top of the World

Soldiers of Task Force Red Devils established a temporary patrol base on the north side of the tunnel. Using existing buildings on-site, the Soldiers provided a suitable area for mission command, equipment staging, and billeting. Initially, the staging and living site was austere, but within 2 weeks, engineers established latrine, shower, and laundry facilities, along with water and trash contracts. The MoPW assisted with facilities for barracks, maintenance, supply storage, and vehicle staging.

A route clearance patrol established initial security until Task Force Hydra assumed the project security mission. Task Force Muleskinner maintained supplies for the operation, conducting convoy and airdrop operations to the site. The remote location made routine ground supply difficult, so the majority of resupply was conducted with directional parachute drops.

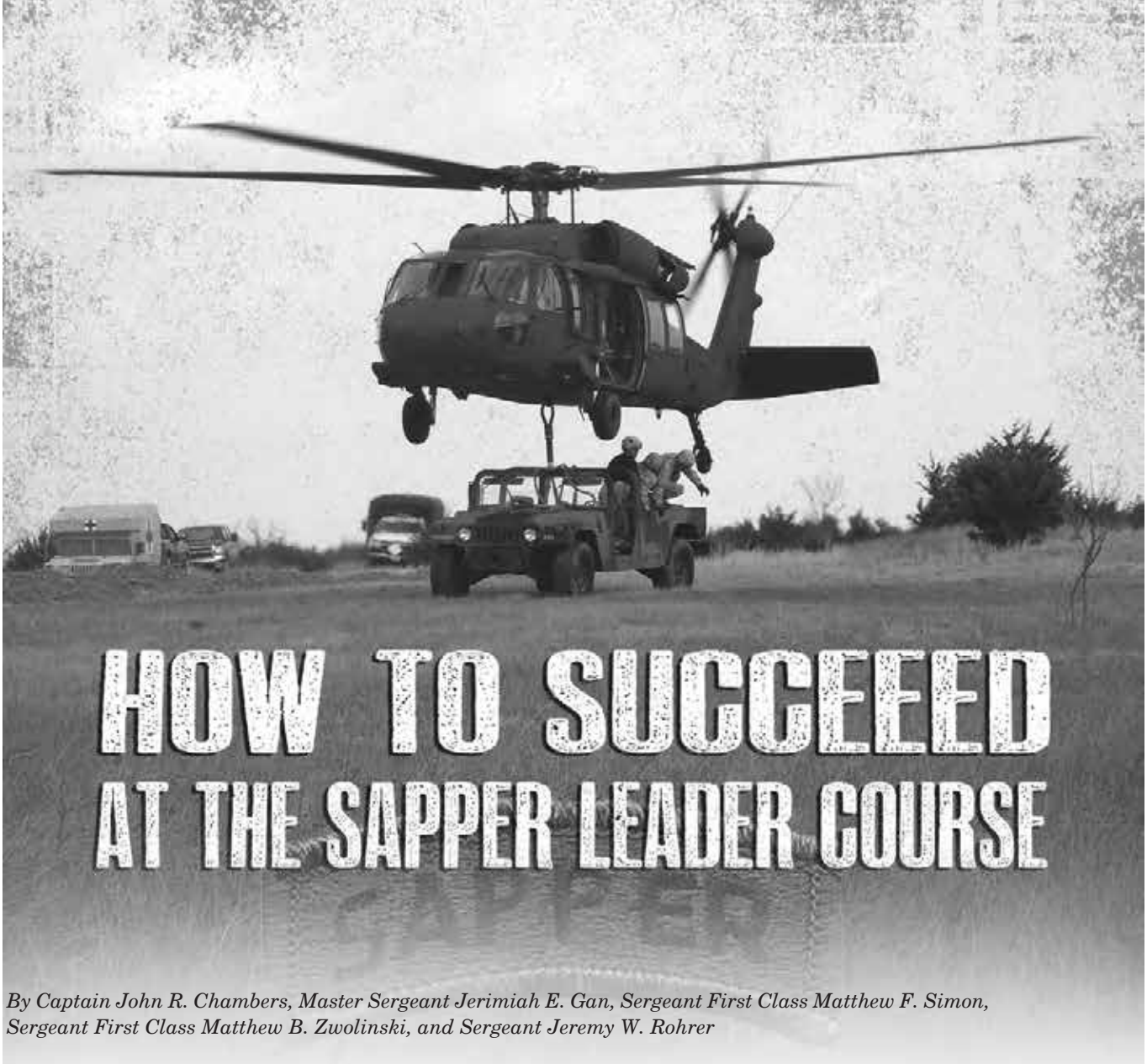
Two snowstorms in September and nighttime temperatures below freezing didn't cool Soldier spirits. Continual contact with local nationals and a sense of accomplishment kept morale high. Thanks to the MoPW, Soldiers had access to freshly baked bread and, occasionally, freshly cooked rice, beans, or lamb. Soldiers consumed the local food as a welcome supplement to the meals, ready-to-eat supplied by the military.

Light at the End of the Tunnel

OMB completed and exceeded the original mission scope by repairing more than 500 meters of road inside each end of the tunnel and 400 meters approaching each end of the tunnel, plus 300 meters of additional repairs further down the route. The entire project totaled more than 2,200 meters of road repair and was completed 26 days ahead of schedule.

A site survey a month after completion confirmed that the project met its intended goal. The road surface was wearing exceptionally well, enabling safer traffic and setting conditions for the start of phase two of the USACE contract. USACE can do very minor maintenance on the base established by OMB and start putting down asphalt. OMB was successful at providing MoPW with the equipment and materials to continue necessary road maintenance through the winter months and beyond. It also trained Afghan equipment operators and increased their knowledge of best practices for repairing and maintaining a critical link in Afghanistan's road network.

Staff Sergeant Smith serves as the public affairs officer for JTF Empire. He has served in the U.S. Army Reserves for more than 16 years as a photojournalist, broadcast journalist, and public affairs noncommissioned officer.



HOW TO SUCCEEED AT THE SAPPER LEADER COURSE

By Captain John R. Chambers, Master Sergeant Jerimiah E. Gan, Sergeant First Class Matthew F. Simon, Sergeant First Class Matthew B. Zwolinski, and Sergeant Jeremy W. Rohrer

The Sapper Leader Course at Fort Leonard Wood, Missouri, is an intense, 28-day course that teaches engineer leaders (in grades specialist through sergeant first class and second lieutenant through captain) advanced skills in mobility, countermobility, and survivability. The course is divided into two phases: general subjects and patrolling. In the general subjects phase, students learn technical skills in—

- Field craft.
- Air operations.
- Waterborne operations.
- Mountaineering.
- Demolitions.

During the patrolling phase, students integrate these technical skills in a tactical environment while using small-unit tactics and battle drills to evaluate leadership abilities.

Starting in fiscal year 2013, Sapper Leader Course graduates were awarded the S-4 additional skill identifier. In fiscal year 2014, the S-4 identifier will be coded into engineer organizations throughout the U.S. Army. Given the current number of graduates in the field and the current course throughput, it will take a substantial time to fill the shortages. Engineer Regiment leaders should know what the course entails and how to choose the right Soldiers to attend and succeed.

The primary graduation discriminator at the course is physical fitness. In fiscal year 2012, 51 percent of attendees graduated from the course. Students who scored higher than 275 on the Army physical fitness test (37 percent of all students) had a 62 percent graduation rate, while those who scored below 230 (9 percent of all students) had only a 31 percent graduation rate. The best way to set Soldiers up for success is to ensure that they are physically fit and properly trained before attending. Too often, a student's training for the course consists of tying knots, brushing up on demolitions calculations, and conducting a sporadic physical training regimen. This is inadequate.



A Sapper student performs an equipment rappel down the 40-foot tower.

Within the course, the biggest hurdle for students is leading a successful patrol. Therefore, students must get out into the woods and practice small-unit leadership and battle drills before attendance. This can be accomplished during sergeants time training or company field training exercises or by setting up a Sapper train-up platoon with other prospective students within a unit.

General Subjects

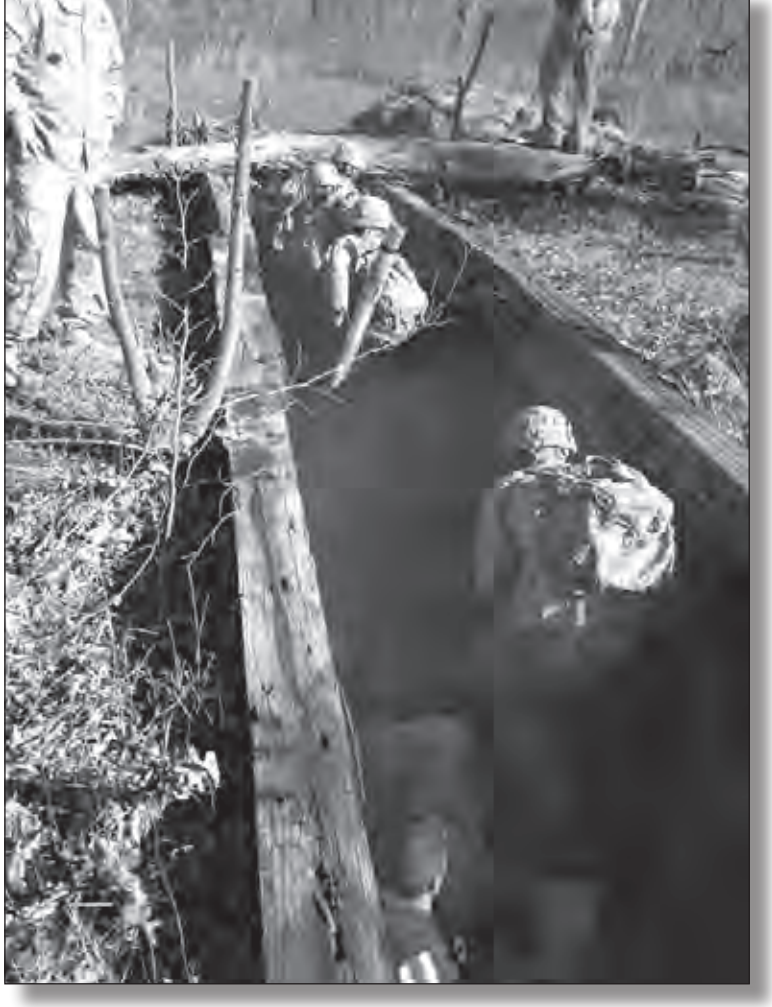
During the first phase of the course, Soldiers spend 14 days balancing its grueling physical demands with an academic load that throws a tremendous amount of information at them in a very short period. For a Soldier to succeed, the unit must be willing to provide at least 30 days of preparation for the physical, academic, and technical aspects of the course. Without quality preparation, students frequently become overwhelmed and struggle with the amount of information they are expected to learn.

Due to the intense and fast-paced schedule, Soldiers are required to complete strenuous, daily training events with limited time for rest and recovery. The Soldier's preparatory training should be consistently demanding, with minimal time for recovery between physical exertion and academic study. The physical training should consist of cardiovascular endurance events, 12-mile road marches with at least 40-pound burdens, and circuit training. This will allow leaders to accurately assess the Soldier's physical and mental abilities. Intense physical training coupled with extensive classroom study that involves demonstrations, practical exercises, and examinations will create a challenging environment in which the Soldier must grasp information and perform. To succeed academically at the course, the Soldier needs proficiency in demolition calculations, mountaineering knots and anchor points, air operations, and basic medical techniques. A Soldier also needs a strong background in team-building and interpersonal skills. Soldiers with opportunities to gain knowledge and experience from additional schools (such as airborne, air assault, rappel master, mountain warfare, Ranger, urban mobility breacher, explosive ordnance clearance, or pathfinder) will have a solid foundation for success.

To set students up for success, their leaders must give them the opportunity to prepare for the challenges they will face. The selection process must be strict and demanding, with a keen eye for sharp character traits, strong personal skills, and overall quality leadership potential.



A "casualty" is transported down a 100-foot cliff face.



Sapper students clear a trench system during their final mission.

Without these elements, Soldiers will have difficulty succeeding in the general subjects phase and at the Sapper Leader Course overall.

Patrolling

The Sapper Leader Course is one of the most demanding leadership schools that the Army offers. In the patrolling phase, students are expected to lead combat patrols by using engineer-specific skills and basic infantry tactics in a simulated combat environment where stress is induced by instructors who are well versed at pushing Soldiers to the edge of their comfort zones—and then a little farther. As if that weren't enough, students lead patrols that are composed of peers (and often, superiors) and are expected to motivate the patrol to accomplish any mission, regardless of their collective abilities.

To succeed in patrolling, an understanding of the definition and principles of leadership is essential. Having an understanding of basic patrolling techniques before attending the course will help, but it is even more important that students be ready to lead. Many students come to the course for the wrong reasons, such as: My first sergeant made me; I want to wear a tab; It looked cool on TV. These are the wrong reasons. Potential Sappers need to arrive ready to prove that they are leaders. During train-up, a focus on improving existing leadership skills and self-confidence will add to the potential for success. Soldiers who are not confident or lack a command presence at their home station won't fare well in the course. Students must be aggressive in their decisionmaking and be able to take initiative regardless of duty position.

Next, students need to arrive at the Sapper Leader Course with one focus: successful completion of the course. During the month leading up to their report date, students must ensure that their affairs are in order so that they can focus on success. The worst possible scenario is to work hard and complete 2 or 3 weeks of the course and then have to return home for a foreseeable event. Preparation includes putting their bills on autopay and ensuring that appropriate family members have a power of attorney. Cell phones are not allowed at the course, and students will only be allowed to contact family members and their units in emergencies.

Finally, motivation is often the most important factor that determines success in the course. Motivation is generated through a confidence in the knowledge of required skills, the ability to complete required physical events, and other internal factors. Students must know Skill Level 1 required tasks and doctrine-based tactics and techniques and be physically fit and ready for any challenge. With all of this in hand, students will be successful.



Sapper students conduct a road cratering mission.



Sappers detonate a water impulse charge.

To assess these qualities, leaders must put together a training program that gives potential students the opportunity to practice small-unit tactics and battle drills. It may be difficult to plan and coordinate this training at the company or platoon level if only one or two Soldiers from the unit are preparing for the course. Therefore, units must think outside the box and consider sending potential Sappers to a pre-Ranger course or coordinating with other units in their battalion, brigade, or division to create a Sapper train-up platoon that will take Soldiers into the woods to practice patrolling skills. The patrolling phase is 50 percent of the course, and neglecting this aspect in a training plan puts Soldiers at a huge disadvantage when they arrive at the course.

Medical

The Sapper Leader Course lasts a demanding 28 days, and students who take it lightly might either fail to meet their full potential or get dropped as a result of injury. The most common afflictions are musculoskeletal injuries involving the knees, ankles, or back. These injuries can result from bad luck, but more often occur due to overuse by an unprepared student. The best way to avoid these injuries is by pursuing a rigorous training regimen before attending the course. This will give a student the best chance of success with the physical aspects of the course and will serve as a preventive measure against avoidable musculoskeletal injuries. Of the 69 percent of students who scored below 230 on the Army physical fitness test and failed to graduate in fiscal year 2012, 35 percent were medical drops. Conversely, of the 38 percent of students who scored over 275 on the test and failed to graduate, only 5 percent were medical drops.

Students should focus mainly on short runs of 3 to 5 miles or road marches of 6 to 12 miles. Runs should be conducted at a pace of 8 minutes per mile; rucksack marches should be conducted at a pace of 15 minutes per mile over rolling terrain. These events should be done 5 days per week to prepare the student's body for the constant beating that these types of events inflict. Often, students neglect this kind of train-up in order to avoid "over training." While this is a possibility, students who listen to their body during training will have nothing to worry about. It's better to go a little too far in training than not nearly far enough.

In addition to running and rucksack marching, students should perform a muscular strength and conditioning program of Olympic lifts and fitness circuits involving push-ups, pull-ups, and abdominal exercises. This will build strength, muscle mass, and muscular endurance that will be a key to peak performance and health during training at the Sapper Leader Course. A few items that students should bring are sunscreen, petroleum jelly to prevent chafing, lip balm, foot powder, bandages, gauze, self-adhesive wrap, medical tape, and antibiotic ointment. These items will allow students to prevent and treat many small medical problems that are common inconveniences during the course.

Conclusion

The Sapper Leader Course is the Engineer Regiment's premier course to train small-unit, combat engineer leaders on the tactics, techniques, and procedures required to successfully support the maneuver commander. As such, unit leaders should do their part to select the right personnel to attend and ensure that these Soldiers get an adequate train-up. This will ensure that the Soldiers have the best chance for success when they arrive for the course.

Captain Chambers is the officer in charge of the Sapper Leader Course Detachment. He is a graduate of West Point and holds a master's degree from Missouri University of Science and Technology in Rolla.

Master Sergeant Gan is the senior noncommissioned officer at the Sapper Leader Course Detachment.

Sergeant First Class Simon is the Sapper Leader Course patrolling committee chief.

Sergeant First Class Zwolinski is the Sapper Leader Course general subjects committee chief.

Sergeant Rohrer is a medic at the Sapper Leader Course. He is currently studying journalism at the University of Missouri–Columbia.

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 2d 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 2d 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 2d 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>.

Base Closure and Transition in Kandahar Province

By Captain Noah Cordova

As the troop surge in Afghanistan ended in September 2012 and the number of International Security Assistance Force personnel was reduced in Regional Command–South, commanders in Kandahar Province were faced with an unsustainable amount of tactical infrastructure. The numerous company- and platoon-size bases that had been critical to the surge became a hindrance that tied forces to base security and limited the number of troops available to patrol. As the 2d Stryker Brigade Combat Team, 2d Infantry Division, addressed this challenge, it became clear that engineers would play a large role in the brigade mission. The 562d Engineer Company was tasked to reinforce the brigade base closure efforts and was assigned to lead the two largest base closure missions.

The 562d was initially assigned to close Forward Operating Base Dashtu, a battalion-size base in the Arghandab River Valley. After successfully closing that base, the company was assigned to transition Forward Operating Base Sarkari Karez (formerly Forward Operating Base Ramrod) to the Afghan Ministry of Agriculture, Irrigation, and Livestock. Both bases required significant horizontal and vertical construction efforts, in addition to major logistical efforts and heavy security requirements. Over the course of the projects, the 562d Engineer Company knocked down 6,000 meters of walls, demolished 12 buildings, transferred 49 buildings, remediated all environmental issues, and shipped 621 containers, 2,930 concrete barriers, and more than 1,600 truckloads of U.S. government property.

The key to the company's success on those projects was the implementation of effective project management practices. The global standard practices of the Project Management Institute provided a tested and effective framework to the operations. Working within the standardized project management process groups taught lessons in the following areas:

Initiating. In the initiating process group, it is critical to fully understand the project. Leaders should know the mission objectives and constraints before setting foot on the base and should have knowledge of the project stakeholders. The project manager must then conduct a detailed leader reconnaissance of the base as early as possible. The initiating process group will feed the planning processes,



Engineers bury a foamed structure.

and the leader should have the following takeaways from the reconnaissance:

- Maps.
- Current contracts.
- Work in progress.
- Tenant units with exit timelines.
- Security requirements.
- Available enablers.
- Project timeline.



A movement control team loads containers on Afghan trucks.

Planning. During initial planning after the leader reconnaissance, units should assess the base sewage, water, electricity, and trash requirements to determine the baseline life-support systems. Food, fuel, communications, and materials-handling equipment must also be deliberately managed as the base closure progresses. Due to the rapid changes that can occur during base closure or transition, these services must be compared to the current population over time. Closing a dining facility provided by the Logistics Civil Augmentation Program while a base still supports a population of 1,000 personnel will be a significant emotional event if there are only three cooks on hand. Basic services typically don't get much attention—until they don't work.

The development of a detailed scope of work that is easy to share and understand is also critical to the planning process. A best practice from the 562d Engineer Company closure experience was to produce a scope of work that was visually laid out in a map format, with each major task identified on the map and marked with a standardized label. A standardized base document could then be sent to all stakeholders, clearly explaining a complex plan to people who had never visited the site. A 50-page statement of work in document form may work well for contracting, but not when explaining the location of water wells to the U.S. Army Corps of Engineers.

Executing. The executing process taught that maximizing the output of project enablers required a full understanding of what they can do and how they can work together. A movement control team can order a limited amount of trucks, but a mobile redistribution team can reduce transportation requirements by destroying nonrecoverable items on site. A horizontal construction platoon can demolish foamed structures and stockpile rubble for shipment to a hazmat collection point, but an environmental remediation control team can advise them on the safe, on-site disposal of the materials. By combining the efforts of different enablers, units can reduce the resources required and maximize the outputs for the base closure project.

During execution, it is also important to predict and manage potential changes. Over the course of a months-long project that relies on acceptance by multiple agencies of the Government of the Islamic Republic of Afghanistan, significant changes can be expected. To minimize the impact of the changes, units must identify tasks that are common to all possible courses of action. Those tasks can be executed while the overall scope of work goes back to the drawing board for changes.

Monitoring and Controlling. Monitoring and controlling processes continue throughout the project. A well thought-out system in this process group will identify issues early and then help identify solutions. A huge takeaway from these projects was the importance of reporting through the owner of the operational environment in a way that clearly showed the progress of the project. Because the 562d Engineers reported issues through the daily commander's update brief, the task force commander had up-to-date information on the project and frequently provided additional assets to support the project.

Closing. In the closing process group, units must compile lessons learned and develop recommended improvements to the process. By sharing the lessons of the project with the brigade and division engineer leaders, systems improve and each closure becomes easier than the one before.

Captain Cordova is the commander of the 562d Engineer Company, currently deployed to support Operation Enduring Freedom. He is a graduate of the Engineer Captains Career Course. He holds a bachelor's degree in management information systems from the Florida Institute of Technology and a master's degree in geological engineering from Missouri University of Science and Technology at Rolla.

When Combat Advising Equals Company Command

By Captain Colby K. Krug

The last thing an officer expects after attending the Engineer Captains Career Course is to take command of a company and then immediately deploy its most experienced and talented leaders to Afghanistan as advisors. Even more unexpected is to leave the company behind to lead a 12-person team to advise an Afghan *kandak*, or battalion-sized element. My unit, the 2d Brigade Combat Team (BCT), 101st Airborne Division (Air Assault), Task Force Strike, was one of the first BCTs to be assigned this mission set.



Afghan sappers tie a shaped charge into a ring main.

The Train-Up

At first, the mission was disheartening to a company commander just three months into that assignment. The new mission would remove and deploy all company noncommissioned officers (NCOs) who served as platoon sergeants and above, which would have a negative impact on the behavior of the lower enlisted Soldiers. However, an intense training cycle for the new advisor team (later called a *security force advise and assist team* [SFA-AT]) began. It consisted of 2 months of predeployment training that included—

- Weapons familiarization and qualification.
- Casualty care.
- Close-quarters marksmanship.
- Call for fire through the use of close combat air support.
- A comprehensive situational training exercise.

The list does not include the 120 hours of classroom training conducted on topics ranging from insider threat to the operation of Harris radio systems. When the train-up was complete, the advisors headed for the Joint Readiness Training Center at Fort Polk, Louisiana. The company provided most of one team and augmented other teams with engineer subject matter experts.

During the bus ride from Fort Campbell, Kentucky, team members read through the list of required reading to prepare for training at Tigerland, the advisor academy conducted by the 162d Infantry Brigade at Fort Polk. The academy consisted of language and cultural training, simulated key leader engagements with retired Afghan National Army (ANA) members, and the role of SFA-ATs on the battlefield. The team learned that "security force assistance is the unified action to generate, employ, and sustain local, host nation, or regional security forces in support of a legitimate authority."[1] U.S. advisors should use a mutually developed bond of trust to provide their ANA counterparts with expert opinions, advice, and counsel. They deploy to serve as observers/controllers for the ANA.

As the 12-person team headed to "the box" for its rotation, members did not know what to expect or how they would be tactically employed. The team advised approximately eight

"ANA soldiers" and four "ANA staff officers," who were in fact all young U.S. Soldiers. The team members taught a few classes to their ANA counterparts and were also used as a commando strike force during raids. Since the job of the team in Afghanistan would be more like observers/controllers, the training might have been better if it had concentrated more on those skills. A successful team requires 12 extroverts who can speak clearly, foster relationships, buy into the mission, and tactically protect the group by offering 360° security.



Donkeys resupply an observation post in Kunar Province.

By the end of the rotation, some personnel changes had to be made to meet those requirements.

The Deployment

The 12-person element took the name Team Beast and was told by the division commander that it was being sent to help shift security duties in Afghanistan to the Afghan National Security Forces (ANSF). The key tasks laid out were simple:

- Provide full-time, focused attention to ANA counterparts.
- Develop genuine relationships with them.
- Create a plan that applied Afghan solutions, ensuring that the way forward was "Afghan sustainable."
- Understand ANA systems; and advise ANA personnel to use their outside entities such as the Operations Coordination Center–Provincial, the Afghan Uniformed Police, the Afghan Border Police, and the Afghan Local Police.
- Integrate coalition enablers to prevent catastrophic failure.

The Relationship

Trust is the key to any good relationship; but unfortunately, trust cannot be built overnight. From the start, team members got to know their ANA counterparts as people, gave them honest and direct answers, and gained their trust and loyalty on the battlefield through partnered operations. The relationship did not start easily. Initially, the team was only asked to help provide bottled water, air conditioners, and generator parts. However, the team stuck to its guns and remembered why it was deployed to Afghanistan. Team Beast was there to advise, assist, and train the Afghan *kandak*; to increase its operational effectiveness; and help it to enable its brigade.

It only took a few rounds of drinking tea and breaking bread with their counterparts before Team Beast Soldiers were standing in front of the *kandak* formation and being introduced to the Afghan soldiers. The advisors at the company level made terrific headway in planning missions, conducting maintenance, coaching various types of training, encouraging religious and education classes, and sharing risk on missions with their counterparts. The U.S. Soldiers saw the Afghan command climate and attitude toward them change before their eyes.

Initial Basic Approach

Team Beast used the warfighting functions to help the *kandak* leaders and staff solve their own problems, especially in the mission command, enabler, and sustainment lines of effort. The team started with a personnel asset inventory and created a book with a photograph of every ANA soldier in the unit. Next, the team helped the *kandak* staff establish a basic battle rhythm. The company advisors kicked the effort into high gear by developing "train the trainer" programs. The idea was that the advisors should build up the Afghan NCO corps, thus empowering the backbone of the ANA formations. The next step was to get the companies to conduct an inventory without U.S. Soldiers counting the equipment. The advisors focused on the importance of a sense of responsibility at every level throughout the chain of command. Soon, the idea caught on and pride became an important factor on future missions.

Advice for Future Advisors

As in any deployment, future advisors will find some things that work and others that don't. Along the mission command line of effort, Team Beast found that its *kandak* was doing an effective job of providing its brigade with engineers (survivability, countermobility, and mobility support), fire support, and reconnaissance

capability. Lessons from Team Beast's deployment yield the following advice to SFA-AT advisors:

- ***Find parallels to U.S. Army methods, and try to model the Afghan units on those parallels.*** Understand that there will be cultural differences, accept "sustainable," and move on.
- ***Understand the ANSF.*** Realize that Afghan soldiers, police, and border patrol personnel are born warriors. They can move up mountains like billy goats, and they have an innate talent for employing infantry tactics, since they were born in a war-torn country. They do not need to be taught these skills.
- ***Develop the NCO backbone of the ANA.*** Advisors at the *kandak* level should advocate literacy training and skills such as map reading for the NCOs. These classes should then be taught to the soldiers by their high-speed NCOs, just as in the U.S. Army.
- ***Remember that people, not paperwork, are most important.*** U.S. advisors cannot solve ANA logistical problems with supply request forms. It requires human interaction with the ANSF to get ANA requisitions sourced. The advisor's job is to take the ANA soldiers to the point of distribution and show them how important it is to make contact and know who to call to get what is needed.
- ***Put soldiers first.*** At the end of the day, the job is all about leaders taking care of soldiers. Advisors must make it a priority to work with the ANSF to provide decent facilities, working equipment, and a worthwhile mission for the ANA soldiers. Advisors always have the same questions: Why can the ANSF not run their own bases? Why is there such a high desertion rate? Why are there insider attacks? These questions are simple to answer: efforts have been so focused "outside the wire" that it has not been a priority to show lower levels what is needed to run a facility.



With help from ANA engineers, Team Beast Soldiers replace a tower on the corner of their combat outpost.

Conclusion

The Nation's leadership got advising and assisting right in the Afghanistan transition. In this case, an SFA-AT came from a unit with an established chain of command, creating the environment needed to make teams take ownership for the results of their counterparts. It also provided an effective observer/controller net where raters, senior raters, and reviewers know their subordinates and can apply necessary amounts of pressure to get results. The SFA-AT model also created a unity of effort that is critical to the mission set when there are many hands in the pot. Leaders who are offered the opportunity to lead such a critical team at such a critical juncture in the Nation's history should embrace the opportunity from the beginning.

Endnote:

[1]Field Manual 3.07.1, *Security Force Assistance*, 1 May 2009.

Captain Krug is the commander of A Company, 2d Brigade Special Troops Battalion, 2d Brigade Combat Team, 101st Airborne Division (Air Assault). He is a graduate of the Ranger School, the Airborne School, the Air Assault School, the Sapper Leader Course, and the Engineer Captains Career Course. He holds a bachelor's degree in accounting from St. Bonaventure University and a master's degree in engineering management from Missouri University of Science and Technology.



COUNTERMOBILITY: GEOGRAPHIC ENGINEERING?

By Captain Nicholas Cosmas

Historically, the primary role of the combat engineer has been twofold: to enhance the mobility of friendly forces and to impede the enemy's ability to maneuver on the battlefield. Whereas there have been numerous developments in the realm of U.S. Army assured mobility operations, the countermobility engineer function has become increasingly difficult in the common operating environment (COE). While it is still true that countermobility operations use or enhance the effects of natural and man-made obstacles to deny the enemy freedom of movement and maneuver, today's Sapper must be prepared to adjust the countermobility paradigm. This article aims to serve as an addendum to Colonel Robert F. Kirby's 1990 *Engineer* bulletin article, "Why Study Military Geography?" which recommended that "Engineer terrain expertise . . . evolve to military geography expertise in order to execute our geographically diverse engineering missions."[1] Although this advice was prescient when it was published more than 20 years ago in Engineer, the constraints of the modern battlefield make it even more imperative that we embrace it today.

Since at least the 13th century A.D., when Chinese military engineers under the Song Dynasty first developed crude explosive mines activated by trip wire, armies have employed land mines in nearly every military engagement across the globe.[2] The modern use of land mines began in earnest during World War I and has been the cornerstone of engineer countermobility doctrine ever since. In the most recent conflicts of the 21st century, nonstate actors have also demonstrated the combat utility of mines and their brethren, the improvised explosive device. The cost of land mines is low in relation to their effectiveness. At first glance, land mines are the "perfect soldiers," as Khmer Rouge general and dictator Pol Pot purportedly said. They never sleep or eat and are always ready, capable, and lethal.[3]

But because the land mine is indiscriminate, the United States and countries across the globe have become more sensitive to their human cost over the last 30 years. Long after armed conflicts end, unexploded land mines continue to claim the lives of school children, livestock, and other innocents. Recognizing the malign effects of land mines on civilians and friendly forces, 160 states have signed the Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on Their Destruction.[4] Even the United States and other nonsignatories to the treaty have refined their design and implementation of mines to limit their use in warfare.[5] In ceding the most effective countermobility asset to our adversaries, we have fundamentally degraded this component of combat power and lost an essential combat multiplier.

Because U.S. forces are no longer authorized to employ persistent land mines, nonpersistent scatterable mines are the only deployable land mine systems currently in the U.S. inventory. The following systems comprise the family of scatterable mines:

- Modular-pack mine system.
- Area-denial artillery munitions.
- Remote antiarmor mines.
- Volcano multiple-delivery mine system.
- Gator air-dropped mine system.

Each of these systems can be effective in achieving the intended obstacle effects of a maneuver commander, but it appears that doctrine has not kept pace with the COE. In implementing the family of scatterable mines, the primary responsibility for the deployment of land mines has shifted away from the engineer and toward a combined arms team that includes field artillery, combat aviation, and the U.S. Air Force. The engineers may still maintain responsibility for countermobility, but their ability to deploy land mines, hitherto the weapon of choice, is constrained by the internal priorities of Service branches that lack a doctrinal foundation in the tenets of countermobility. Army Doctrine

"The conditions in the COE call for a countermobility framework that emphasizes the ability to accurately predict when and where enemy attacks will occur by conducting more thorough analyses of the human and physical terrain."

Publication 3-09, *Fires*,[6] fails to mention land mines; while Army Doctrine Reference Publication 3-09, *Fires*,[7] fails to list the employment of scatterable mines as a role, core competency, or critical capability of the field artillery. The aviation communities of the Army and Air Force demonstrate a similar lack of focus on the deployment of land mines in support of countermobility operations, yet it remains a nostrum among doctrine writers that mine warfare is countermobility. While land mines have certainly played a significant role in countermobility in the past, the future will necessarily be far more nuanced. Field Manual 90-7, *Combined Arms Obstacle Integration*, offers a mere seven pages of information on the use of obstacles other than land mines, while devoting far more copy to covering land mine warfare in exhaustive detail.[8] Even new drafts of Army and U.S. Marine Corps doctrine fail to account for the challenges that the COE presents to the traditional view of countermobility given the inherent limitations of mine warfare.

Today's battlefield presents many challenges to countermobility operations. U.S. and international law restrict the use of land mines, while budget and logistical constraints at all levels limit the availability of nonpersistent scatterable mines and networked munitions. Meanwhile, uniformed and irregular enemies seek to conduct operations in heavily populated and urban terrain in order to limit U.S. advantages. As the Engineer Regiment continues to revise countermobility and combined arms integration doctrine, commanders and their staffs must realize the potential negative impacts that obstacles can have on noncombatants, the environment, and the ability to conduct stability operations. They should employ obstacles judiciously to create the desired effects without excessive collateral damage.

Though the limitations of land mines in the COE are real, current doctrine seems almost wholly focused on promoting mine warfare to the detriment of all other military obstacle efforts. Road cratering, rubbling, and preconstructed obstacles get short shrift, while mine warfare remains the centerpiece of Army countermobility doctrine. It is up to the commander on the ground to understand the reinforcing effects of the abatis, wire obstacle, dam breach, or road crater without the benefit of an updated engineer framework. The guidelines are scant for using these methods to reinforce natural and man-made cultural obstacles. Instead, current doctrine still advocates the use of self-deactivating and self-destructing land mines. It is clear that the Engineer Regiment must actively seek to develop a new countermobility paradigm that aligns with the souring public sentiment toward land mines and the inherent design flaws of land mines that render them ineffective in many military mission sets today. The basis for this new doctrine ought to rest within a geographical framework. As Colonel Kirby implored, "the study of military geography must become as much a part of our professional development as tactical support, engineering design, and project management."[9] Whereas Field Manual 90-7 supposes that "the technology used to create obstacles may continue to become more complex," terrain is still one of the most significant assets that commanders have at their disposal.[10] Terrain evaluation is and should be the first step in the development of a countermobility plan. Even more so than in the past, commanders today must take full advantage of existing natural and cultural obstacles and the restrictive nature of battlefield terrain in an increasingly urbanized world. In doing so, commanders can reduce demand for the limited quantities of scatterable mines and networked munitions in the Army inventory and accomplish missions without tarnishing the U.S. image abroad.

The conditions in the COE call for a countermobility framework that emphasizes the ability to accurately predict when and where enemy attacks will occur by conducting more thorough analyses of the human and physical terrain. Like the engineer of bygone eras, today's Sapper must possess a deep understanding of slope, soil composition and trafficability, religious beliefs, weather, climate, cultural artifacts, and social mores among other dimensions so that commanders can be more precise in how and where to employ their diminished countermobility capabilities. Just as we expect the engineer to accurately establish a drainage plan for a forward operating base, it is imperative that the engineer understand that a religious group may regard a certain mountain as sacred before beginning construction or destruction in that spot. As Colonel Kirby wrote, "mere data of physical geography (position, topography, resources, population, and climate) have no intrinsic political or military significance. Such data acquire military geographic or political significance only when they are related to some frame of assumption as to what is to be attempted by whom, when, where, and in conjunction with what adversaries, allies, and neutrals." To be of use to the maneuver commander, these raw data "must be communicated in a timely manner and in a form which supports the decision."[11] The benefit of the geographical perspective to the commander is that it serves to synthesize relevant spatial markers and inform the decisionmaking process. A geographical perspective

improves the way that engineers conduct countermobility and will improve assured mobility and refocus threat reduction efforts.

In the past, mine warfare nearly usurped the full power of countermobility as a way to attack the enemy's ability to execute its plan. However, the sun has set on the era of land mines. War in the era of persistent conflict will increasingly be waged before a public that tolerates precious little collateral damage to civilian populations and infrastructure. Unfortunately for military planners and strategists who would prefer to continue using land mines as they always have, in the court of public opinion, the use of land mines is tantamount to targeting civilians. In such an environment, commanders need Sappers who can think about the full capabilities of the Engineer Regiment to counter the mobility of rivals. We must restore the premium once placed on geographical competence, and engineer doctrine and programs of instruction should reflect this.

Endnotes:

[1]Robert F. Kirby, "Why Study Military Geography?" *Engineer*, October 1990, Volume 20, No. 3.

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[5]Presidential Decision Directive 48 (PDD-48), "Anti-Personnel Landmines (APL)," 26 June 1996.

[6]Army Doctrine Publication 3-09, *Fires*, 31 August 2012.

[7]Army Doctrine Reference Publication 3-09, *Fires*, 31 August 2012.

[8]Field Manual 90-7, *Combined Arms Obstacle Integration*, 29 September 1994.

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[11]Kirby, 2012.

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THE ENGINEER WRITER'S GUIDE

Engineer is a professional-development bulletin designed to provide a forum for exchanging information and ideas within the Army engineer community. We include articles by and about officers, enlisted Soldiers, warrant officers, Department of the Army civilian employees, and others. Writers may discuss training, current operations and exercises, doctrine, equipment, history, personal viewpoints, or other areas of general interest to engineers. Articles may share good ideas and lessons learned or explore better ways of doing things.

Articles should be concise, straightforward, and in the active voice. If they contain attributable information or quotations not referenced in the text, provide appropriate endnotes. Text length should not exceed 2,000 words (about eight double-spaced pages). Shorter after action type articles and reviews of books on engineer topics are also welcome.

Include photos (with captions) and/or line diagrams that illustrate information in the article. Please do not include illustrations or photos in the text; instead, send each of them as a separate file. Do not embed photos in Microsoft PowerPoint or Word. If illustrations are in PowerPoint, avoid the excessive use of color and shading. Save digital images at a resolution no lower than 200 dpi. Images copied from a Web site must be accompanied by copyright permission.

Provide a short paragraph that summarizes the content of the article. Also include a short biography, including your full name, rank, current unit, job title, and education; your mailing address; a fax number; and a commercial daytime telephone number.

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132d Engineer Company "River Rats" Bridge and Fight in Afghanistan

By First Lieutenant Jose D. Torres

During spring 2012, the 132d Engineer Company (Multirole Bridge), California Army National Guard, arrived at Camp Leatherneck, Helmand Province, Afghanistan. The highly trained engineer unit from northern California immediately took up its duties of providing personnel and equipment to transport, assemble, disassemble, retrieve, inspect, and maintain all standard U.S. Army and North Atlantic Treaty Organization bridge systems in the Afghanistan Combined Joint Operations Area. The primary panel bridging systems used throughout Afghanistan by International Security Assistance Forces cater to a wide variety of military and civilian vehicles, including those with low ground clearance. The steel structures assembled from prefabricated sections give coalition forces and Afghan civilians greater freedom of movement throughout Afghanistan's challenging terrain.

Other bridging systems maintained, constructed, and inspected by the 132d Engineers include the improved ribbon, dry support, and rapidly emplaced military bridges, as well as civilian bridges. Toward the end of April, engineers from the



Soldiers from 1st Platoon repair a bridge on Highway One.

2d Platoon were assigned to man the improved ribbon bridge already in place across the Helmand River. This type of bridge is the premier wet-gap crossing option for distances exceeding the limit of other tactical bridges. The bridge allows coalition forces to cross the river even during flood seasons. During the rest of the year, vehicles can ford the stream.

The 132d "River Rats" have conducted emergency and deliberate bridging operations with different bridging systems in every Afghan regional command. In addition, the 132d is occasionally tasked with nonbridging missions, such as security for gravel deliveries in western Kandahar Province. During that mission, the gravel security team supported Regional Command–South units with the safe and successful delivery of 12,360 tons of gravel for road construction.



Soldiers from the 132d Engineer Company emplace a 5-bay Mabey bridge.

The year 2012 was a busy year for the entire company, especially for the Soldiers of the 1st Platoon. Soon after arrival, they conducted seven bridge repairs along the Highway One "Ring Road" from Herat in Regional Command–West to Paktia Province in Regional Command–East. A short time later, the Soldiers emplaced their first 10-bay Acrow modular bridge in southern Afghanistan. With little break in the action, they went on to emplace 9-bay and 8-bay Acrow bridges and a pair of 5-bay Mabey bridges. They also removed a 10-bay Acrow bridge, a 15-bay Mabey bridge, and two rapidly emplaced bridges and repaired six nonstandard bridges along Highway One. In total, the 1st Platoon engineers repaired or replaced more than 30 bridges in less than 180 days.

The Soldiers of the 2d Platoon were no less challenged. They emplaced two rapidly emplaced bridges and a 6-bay Mabey bridge. Other bridging operations included the removal of a 5-bay, medium-girder bridge and the repair of 20 line-of-communication bridges along Highway One. The Soldiers of the 2d Platoon have repaired or emplaced more than 30 bridges since their arrival in the Afghanistan theater of operations.

The unsung heroes in the Support Platoon also maintained a high operational tempo by providing solid preventive maintenance checks and services for mission-critical bridging equipment and tactical vehicles. From start to finish, the Support Platoon consistently maintained the company equipment readiness rate at 98 percent or higher. This was no small achievement, considering that the platoon performed maintenance on more than 900 pieces of serviceable equipment, two and a half times the normal multirole bridge company complement. The Support Platoon also provided jobsite security personnel and heavy equipment operators for more than 50 bridge repairs, removals, and emplacements. This allowed the company bridge crewmen to do what they do best—build bridges—while the Support Platoon conducted heavy-lift crane operations and secured bridge sites during bridge-building missions.

Two Support Platoon members had the privilege of partnering with the Afghan National Army, providing training in the maintenance and operation of heavy equipment, including the hydraulic excavator, bucket loader, D7 bulldozer, grader, backhoe loader, dump truck, and 30-ton crane. Support Platoon trainers worked at many forward operating bases, instructing members of the Afghan National Army on tasks such as clearing and grubbing, road grading, cutting and filling, and quarry and haul operations. Over 6 months, five classes of specialized Afghan National Army equipment operators graduated.

The Afghanistan wet season and subsequent spring runoff will increase the water volume at numerous wet-gap bridge sites and erode embankments at others. Whatever the conditions or mission requirements, the 132d Engineer Company River Rats will be up to the "bridge and fight" challenge.

First Lieutenant Torres is the executive officer of the 132d Engineer Company (Multirole Bridge). He holds a bachelor's degree in civil engineering from the University of the Pacific and is a registered engineer in training. He is a graduate of the Engineer Basic Officer Leader Course.

Using the Project Management Body of Knowledge to Enhance the Operations Process

By Captain Kyle P. Moore

Field Manual (FM) 1-02, *Operational Terms and Graphics,*[1] defines a military operation as "A military action or the carrying out of a strategic, operational, tactical, service, training, or administrative military mission," and the operations process as the "activities performed during operations: plan, prepare, and execute with continuous assessment." Contrast these definitions with the Project Management Institute® definition of a project as "a temporary endeavor undertaken to create a unique product, service, or result," and project management as the "application of knowledge, skills, tools, and techniques to project activities to meet the project requirements." A commander or staff officer may be led to believe that the operations process and project management are two separate approaches to the same idea. This belief, however, could limit their planning capabilities.

This article will argue that these are not two separate takes on the same idea, but rather that project management is a broad approach while the operations process is a specific set of techniques and procedures developed by the military that fits within the Project Management Body of Knowledge® (PMBOK).[2] Since project management is a broader look, it can be used by planners to enhance analysis and planning. When viewed this way, it is easy to see the value and utility of studying and employing project management at the unit level. This study can be accomplished through an officer or noncommissioned officer professional development program.

Project management is often part of the required curriculum at many civilian undergraduate and graduate institutions. It is most common in engineering and business administration programs. As a result, many commissioned officers are already familiar with the principles of project management and can serve as subject matter experts for unit level training. Commissioned, warrant, and noncommissioned officers serving in command and staff roles who are not formally trained will greatly benefit from such training.

The value of using project management to enhance the operations process is most obvious in planning stability operations, support operations, and operations that are not unique to the military, such as formal balls, community outreach programs, or Family Readiness Group activities. The primary planning mechanism in the operations process—the military decisionmaking process (MDMP)—is primarily designed for, and is most effective in, planning offensive and defensive operations, though it is applicable to all military operations. There are specific aspects of PMBOK that enhance the MDMP, some of which are highlighted below.

Similarities

Despite some significant vocabulary differences, studying the PMBOK at a unit level will be a familiar process to most planners. The PMBOK and Army Doctrine Reference Publication 3-0, *Unified Land Operations*[3] break down each process into phases. Army Doctrine Reference Publication 3-0 divides the operations process into the following four phases, or mission command activities:

- Plan.
- Prepare.
- Execute.
- Assess.

The PMBOK breaks down project management into the following five phases, or process groups:

- Initiating.
- Planning.
- Executing.
- Monitoring and controlling.
- Closing.

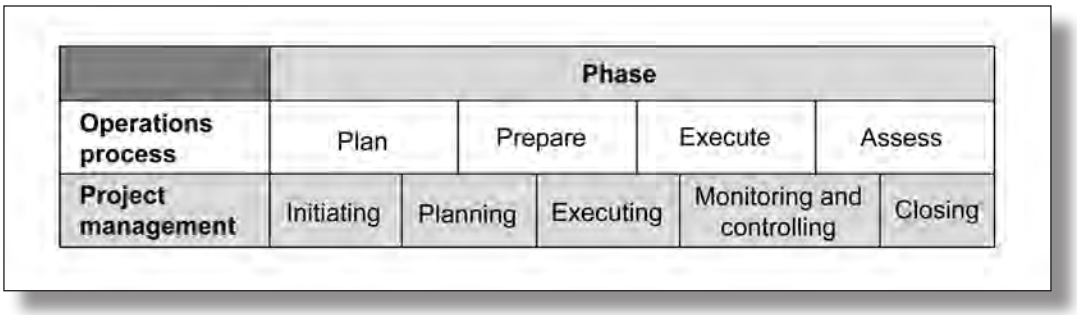


Figure 1

In both breakdowns, phases overlap in time. In addition, both processes explain the phases as cyclical during the life of a project or military operation. Figure 1 outlines when most of the tasks of each process overlap.

Project management and the MDMP use a series of inputs, tools (or processes), and outputs to maximize efficiency. Many of the inputs, tools, and outputs are similar in nature. For this reason, Soldiers familiar with MDMP will grasp the concepts in the PMBOK very quickly. See Figure 2 for an example.

Differences

Project management is divided into 42 processes. They are organized into the five process groups named above, but are further organized into nine knowledge areas. Many of the knowledge areas, such as project human resource management and project risk management, describe existing command and staff functions. Some of the project management processes are not addressed in the operations process, but are addressed in other Army doctrine. The project management process of "perform quality assurance," for example, is addressed at length in Army Regulation 750-1, *Army Materiel Maintenance Policy*.[4]

An organization studying the PMBOK adds the most value by concentrating on the project management processes that are not a particular focus of the operations process, MDMP, or other Army doctrine. While many talented commanders and staffs will include the concepts of the PMBOK without formal training, the deliberate approach in the PMBOK will improve the efficiency and completeness of the unit planning efforts.

Of the 42 project management processes, the following will have the most impact when used in conjunction with existing Army doctrine and will be discussed in greater detail:

- Identify stakeholders.
- Manage stakeholder expectations.
- Estimate costs.
- Determine budget.
- Perform quantitative risk analysis.

Identify stakeholders. A stakeholder is defined as a "person or organization that is actively involved in the project, or whose interests may be positively or negatively affected by execution or completion of the project.

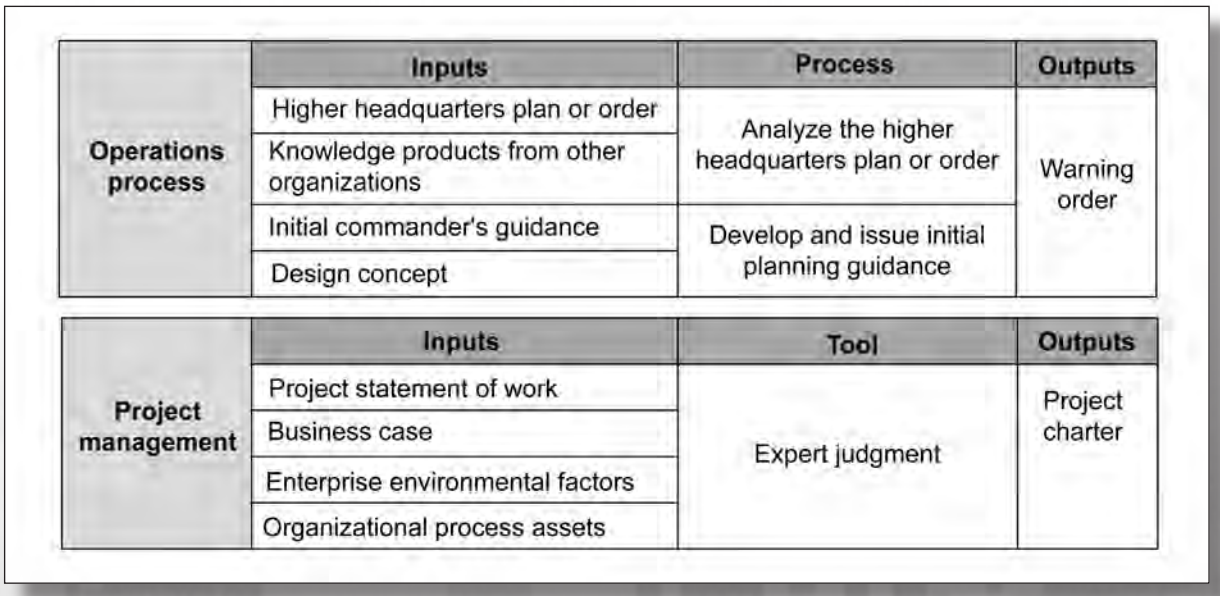


Figure 2

A stakeholder may also exert influence over the project . . ."[5] Typical stakeholder identification in a military operation is accomplished by a METT-TC (mission, enemy, terrain and weather, troops and support available, time available, and civil considerations) analysis. The most difficult stakeholders to identify are often part of the civil considerations. Army Tactics, Techniques, and Procedures 5-0.1, *Commander and Staff Officer Guide*, states that "The G-9 (S-9 [civil affairs operations officer]) ensures each war-gamed [course of action] effectively integrates civil considerations (the "C" of METT-TC). This officer assesses how operations affect civilians and estimates the requirements for essential stability tasks commanders might have to undertake based on the ability of the unified action. Host nation support and care of dislocated civilians are of particular concern. The civil affairs operations officer's analysis considers how operations affect public order and safety, the potential for disaster relief requirements, noncombatant evacuation operations, emergency services, and the protection of culturally significant sites."[6]

The challenge for many battalions is that there is not a civil affairs operations officer assigned or attached to the unit. These duties then fall to other staff members who are not trained in civil affairs. Practice in stakeholder identification can bridge the knowledge gap between the formal training that a Soldier with a civil affairs military occupational specialty receives and any other Soldier.

Stakeholder analysis also makes a significant impact in operations that are not unique to the military. Knowing the demographics of family readiness group members will help leaders plan events that are fun and age-appropriate for most of the group. Bringing a caterer into the planning process for a formal ball at the right time can mean the difference between a good event and a great event. Stakeholder analysis is the means to this end.

Manage stakeholder expectations. This is defined as "the process of communicating and working with stakeholders to meet their needs and addressing issues as they occur."[7] An output of the "identify stakeholders" process above is also a key input for this process. The stakeholder management strategy "defines an approach to increase the support and minimize the negative impact of stakeholders throughout the entire project life cycle."[8] The stakeholder management strategy is a list of stakeholders, their views of the project or military operation, the expectations of the planners, the impact of the stakeholder, and a strategy of how to gain support or reduce obstacles. See Figure 3 for a sample stakeholder analysis matrix for a battalion formal ball.

Managing expectations for all moderate- and high-impact stakeholders can mean the difference between mission success and mission failure. Consider the impact that local elected officials and nongovernmental organizations had on the operations of the numerous Army National Guard units activated in the wake of Super Storm Sandy. A local official

Stakeholder	Interest in project	Assessment of impact	Strategies for gaining support or reducing obstacles
Brigade commander	Low	High	Maintain communication, and update training schedules in DTMS.
FRG leaders	Moderate	Moderate	Incorporate into the planning process through working groups.
Division band	Low	Moderate	Work with band OIC and division G-3 to task the band and communicate the time and location of the ball.
Company commanders	Moderate	High	Track the number of Soldiers that RSVP to the ball by company, and provide numbers to commanders. Encourage participation at the Soldier level.

Legend:

DTMS - Digital Training Management System
FRG - family readiness group
G-3 - operations and training officer
OIC - officer in charge
RSVP - reply

Figure 3

may expect more out of a unit than that unit can provide. If that expectation is not communicated and mitigated, the Army National Guard could lose credibility despite a heroic performance. A commander or staff may also be able to convince stakeholders to allocate resources to the military operation, increasing the capabilities of the unit.

Estimate costs. The operational budget for a battalion is often directed from a higher headquarters. As a result, cost estimating at the battalion level is often a top-down approach. The benefit of using the PMBOK methods of estimating costs comes mainly from the tools and techniques. One such tool is *bottom-up estimating*. This method estimates the cost of each component of work within the project and then summarizes the costs to higher levels. This technique is particularly useful if fund-raising is needed to meet the financial requirements of an operation. Estimating the cost can lead to setting accurate and realistic fund-raising goals.

Determine budget. Estimating the costs leads directly to determining the budget. How much can we spend on hamburgers for the battalion organization day celebration? What should the ticket price be for the formal ball? Do we need to submit an unfunded request, or are there sufficient funds in the operation budget to support the operation? The tools and techniques in this project management process can help commanders and staffs answer these questions.

Perform quantitative risk analysis. FM 5-19, *Composite Risk Management*, is primarily concerned with a process that the PMBOK defines as qualitative risk management. FM 5-19 defines composite risk management (CRM) as "the Army's primary decisionmaking process for identifying hazards and controlling risks across the full spectrum of Army missions, functions, operations, and activities. CRM is a decisionmaking process used to mitigate risks associated with all hazards that have the potential to injure or kill personnel, damage or destroy equipment, or otherwise impact mission effectiveness."[9]

CRM is primarily concerned with personnel and equipment and does not explicitly associate financial cost with residual risk. Quantitative risk analysis, on the other hand, "is the process of numerically analyzing the effect of identified risks on overall project objectives."[10] In real terms, commanders and staffs can assess the budgetary impacts of residual risks identified during CRM. It puts real numbers to questions such as what can be done if the caterer gets a down payment but the ball is cancelled, or if extra food must be purchased when more people than expected show up to the family readiness group picnic. Quantitative risk analysis can significantly improve the contingency planning of a unit and may enable the commander to make better-informed decisions.

Training With the PMBOK

Among the most common tools and techniques used in the 42 processes of project management are organizational process assets. They are defined as "any or all process-related assets . . . that are or can be used to influence the project's success. These process assets include formal and informal plans, policies, procedures, and guidelines."[11] When conducting training using the PMBOK, the operations process, including the MDMP, should be viewed as an organizational process asset. Army Tactics, Techniques, and Procedures 5-0.1 states that MDMP, for example, "helps leaders apply thoroughness, clarity, sound judgment, logic, and professional knowledge to understand situations, develop options to solve problems, and reach decisions."[12] This description nests perfectly with the definition of an organizational process asset.

Project management and the operations process should not be viewed as opposing ideas. Rather, proficiency in one should lead to proficiency in the other. The desired end state of training and planning with the PMBOK is to improve the unit planning efforts and overall effectiveness in military operations. Encouraging professional development using the PMBOK will enhance the planning capabilities of any unit and should be strongly considered by commanders and staff for use as a training tool.

Endnotes:

[1]FM 1-02, *Operational Terms and Graphics*, 21 September 2004.

[2]*A Guide to the Project Management Body of Knowledge (PMBOK Guide)*, Fourth Edition, Project Management Institute, 2008, p. 442.

[3]Army Doctrine Reference Publication 3-0, *Unified Land Operations*, 16 May 2012.

[4]Army Regulation 750-1, *Army Materiel Maintenance Policy*, 20 September 2007.

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[6]Army Tactics, Techniques, and Procedures 5-0.1, *Commander and Staff Officer Guide*, 14 September 2011.

[7]*A Guide to the Project Management Body of Knowledge* (PMBOK Guide).

[8]Ibid, p. 251.

[9]FM 5-19, *Composite Risk Management*, 21 August 2006.

[10]*A Guide to the Project Management Body of Knowledge (PMBOK Guide)*.

[11]Ibid, p. 439.

[12]Army Tactics, Techniques, and Procedures 5-0.1.

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TROJAN HORSE INTEGRATED TRAINING STRATEGY

By Major Louis L. Birdwell III, Captain Adam R. Martin, and Captain David M. Picard

The 8th Engineer "Trojan Horse" Battalion, 36th Engineer Brigade, Fort Hood, Texas, began training for its return to combat operations shortly after redeploying from Afghanistan in December 2011. The battalion training plan was designed for the mission command of a multifunctional engineer task force operating in Regional Command–East. To prepare for the deployment, training focused on the prevalent lethal threats in Regional Command–East, the most common being command wire, improvised explosive devices (IEDs) and direct-fire engagements. To train for this operational environment most effectively, the train-up integrated engineer-specific tasks with mounted and dismounted live-fire events to create highly skilled route clearance patrols. We developed the Trojan Horse Integrated Training Strategy (THITS) to combine the engineer qualification tables (EQTs) with mounted, unstabilized gunnery tables to achieve this result.



Soldiers prepare a Talon® robot to place a charge on an IED during a live blow-in-place event.

The goal of this four-phase strategy was to train elements of six companies on three different deployment and Army force generation timelines to a common benchmark. The training foundation for THITS rests on standards in

current engineer and gunnery squad qualification tables. The amalgamation of the two tabled training strategies was nested with the 36th Engineer Brigade and Fort Hood counter IED gated training strategy.

There were multiple benefits to using doctrinal models as bases for the training construct. Using the heavy brigade combat team unstabilized gunnery model, the training methodology could be expressed in common maneuver language, thus nesting with the III Corps gunnery support plan. This secured high-demand training resources, such as dedicated ranges and land, that otherwise would have been scattered across the entire training area. The construct also helped to clearly outline training expectations for each company, by phase, through annual and quarterly training guidance. The ability to communicate these expectations on a quarterly basis to subordinate units on different Army force generation cycles helped manage a complex training calendar.



A Soldier engages targets during a gunnery table.

To implement the phased training, one company was assigned to support the overhead—cadre, lane support, ammunition, range coordination and administration—associated with running the training. This freed the training unit to focus on executing that task. As companies leapfrogged through the training, those that were already familiar with the construct could be cycled in, reducing the number of rehearsals and in-progress reviews needed to educate and synchronize the rest of the formation.

A battalion master gunner was essential to implement, organize, and execute the blend of EQT and gunnery. After a quick survey of the ranks, a Bradley-qualified master gunner was identified and reassigned to the operations and training section. The tremendous amount of knowledge that this leader brought to the fight enabled the battalion to seamlessly plan and execute EQT tasks in concert with gunnery.

The companies began the process with individual training. During Phase 1 of THITS, the unit trained individual Soldiers and crewmen on the initial EQT and gunnery tables at the company level before starting the remaining tables, which were incorporated into squad and platoon level field exercises. The individual tables were completed at crew-served weapons ranges and in classrooms, using inert and live demolitions, premarksmanship instruction, and individual and crew-served, live-fire weapons qualification.

Phase 2 of THITS focused on the squad/crew level, where the next EQT and gunnery tables were completed. These tables were conducted through a combination of route clearance-focused missions on demolition ranges, training areas, and multiuse ranges. Squad EQT tasks were a combination of mounted and dismounted operations, including—

- React-to-contact.
- React-to-IED.
- IED blow-in-place.

Gunnery crews consisting of a driver, gunner, and tank commander trained and qualified as teams. Crews went through lanes consisting of dry, blank, and live engagements, culminating in crew qualification. In the culminating event of Phase 2, squads conducted dismounted live-fire with a live, blow-in-place event. This event placed a squad on the ground to conduct dismounted clearance and small-arms, live-fire engagements; exercise mounted to dismounted communication and synchronization; and conduct a blow-in-place with the Talon robot, which validated the previous training. Phase 2 forced the crews to communicate and work together for the gunner to quickly and effectively engage targets and coordinate with the dismounted clearance element.

As part of crew certification, the battalion also incorporated mine-clearing line charge training, including inert shots at Fort Hood and live shots at the National Training Center at Fort Irwin, California. It was imperative that young Soldiers and leaders train on this invaluable piece of equipment because of the complex obstacle belts present during route clearance operations in Regional Command–East. Once crews completed the inert shot, they incorporated mine-clearing line charges into their formations during Phase 3 of THITS.

In Phase 3, the focus shifted to the section/platoon level, where the EQT and gunnery tables were completed in route clearance missions with sections of two gun trucks



A Buffalo interrogates a suspected IED.

and then platoons of four gun trucks. Sections and platoons went through the same training progression as the squads and crews, using dry, blank, and live ammunition lanes. The platoon portion of the EQT training used a complete route clearance patrol consisting of four gun trucks; two Husky vehicle-mounted mine detectors; one Buffalo™ mine-protected clearance vehicle; and recovery assets. Facing scenarios that included IED finds, IED strikes, and small-arms fire, platoons had to use enablers, such as handheld detection systems, robots, and aerial support. These enablers added a sense of realism to the training that forced leaders to exercise mission command over multiple elements in an intensely realistic environment. Phase 3 culminated with platoon route clearance that included mounted and dismounted live-fire engagements and a live, blow-in-place event.

To inject the proper training stimuli, the Fort Hood Counter IED Integration Cell was drawn into lane planning and execution. These subject matter experts provided hands-on training for tactical site exploitation, tactical questioning, and cultural awareness. They also provided state-of-the-art training aides that replicated IEDs, giving a level of realism that otherwise would not have been possible.

In Phase 4 of THITS, the companies started the culminating training event at the National Training Center or the Joint Readiness Training Center, Fort Polk, Louisiana. Here the lessons learned from earlier squad and platoon level training events were applied to company level missions where the company headquarters has tactical authority over multiple moving pieces. The company leaders were validated at this time, just as squad leaders and platoon sergeants/platoon leaders had been during earlier training. After completing this training, units revisited the Virtual Clearance Trainer Suite to hone and sustain route clearance skills and implement the lessons learned from combat training center rotations. The units also used the Warrior Skills Trainer to go through virtual gunnery tables, which allow continuous training while working around time constraints in the final weeks leading up to a deployment.

THITS proved to be a highly effective training construct that seamlessly integrated the engineer qualification table and the mounted, unstabilized gunnery table. THITS enabled the 8th Engineer Battalion to successfully prepare six companies, operating on three Army force generation cycles, for deployment to Regional Command–East. The training construct also achieved the goal of producing Soldiers and leaders who are confident in their ability to be lethal while employing mounted and dismounted weapon systems, to conduct mounted and dismounted route clearance, and to simultaneously apply both of these skill sets. Finally, THITS has also provided the added benefit of training a new generation of engineer leaders in tabled training, ensuring that they are proficient with standards-based training and fluent in the doctrinal language and terminology of maneuver qualification tables.

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WHEN THE TARGET THEY CHOOSE IS YOU

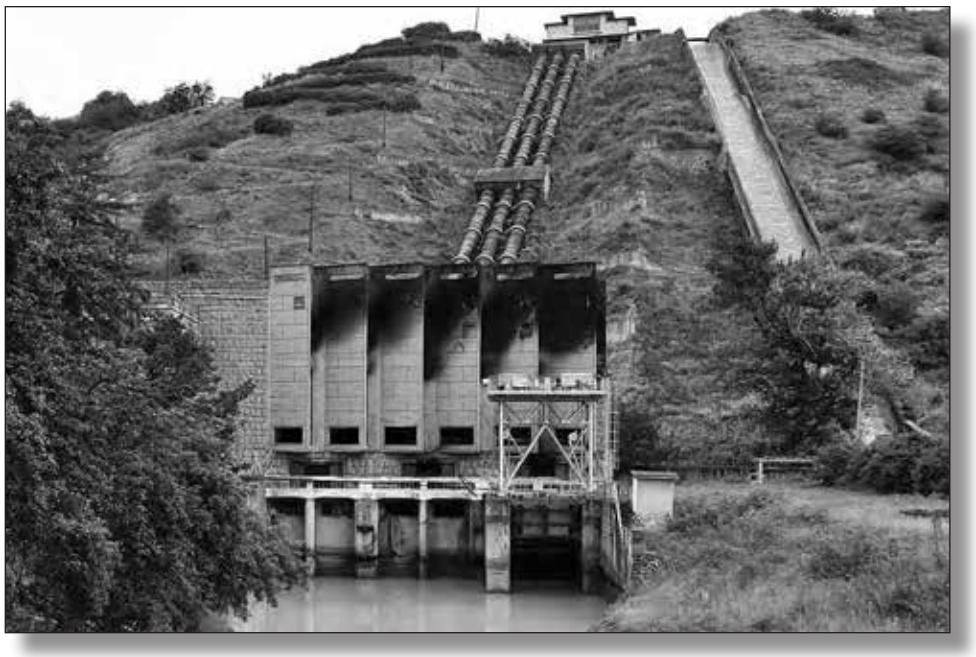
What Every Army Engineer Should Know About Protecting Personnel and Securing Property

By Lieutenant Colonel Lawrence M. Smith

Our Threat: Terrorism and Crime

The summer heat was still trapped in the muggy night air when an explosion cracked the stillness outside the local police station in Baksan, Russia. It was approximately 0200 on 21 July 2010. No one was hurt in the blast, but authorities called in patrol officers to assist with the investigation and secure the crime scene. With the local police distracted, members of the radical Islamic group *Baksan Jamaat* executed the second phase of their plan on the other side of town. They fatally shot two guards and wounded three others as they stormed the hydroelectric plant and dam facilities. Once inside, they rounded up two employees and tortured them to gain access to the plant's main turbine hall. With less than 25 pounds of TNT, they destroyed two generators worth $49 million, disabled the plant, and ignited a major fire that took more than 3 hours to extinguish.

The Baksan attack echoed a similar incident in 2006, when terrorists belonging to the Earth Liberation Front unsuccessfully conspired to attack the Nimbus Dam near Folsom, California, with explosives. Ecoterrorists target dams because they are large projects that symbolize man's arrogance and greed by dramatically altering "nature's course" to fulfill his selfish needs. The



Baksan hydroelectric plant after terrorist attack



Nimbus Dam on the American River in California

U.S. Army Corps of Engineers (USACE) has more than 500 dams. About 80 of them house more than $20 billion worth of hydropower assets. The USACE employees who operate these dams face a persistent threat from ecoterrorism. In the tumultuous era ushered in by 11 September 2011, every USACE employee faces a heightened threat from political zealots and religious extremists—increasingly homegrown—who would relish the chance to grab provocative headlines with a successful attack against members of a U.S. Army organization. Ideologically motivated threats will be a danger for the foreseeable future. On top of them, USACE also faces the constant threat of crime and vandalism. In 2010, USACE had 1,167 construction projects, all of them potential targets for theft and vandalism. USACE also manages 422 federal lake and river project sites across 43 states, making it the largest water-based outdoor recreation provider in the Nation. These sites offer an array of potential targets for criminals and vandals and have historically been chosen by mentally troubled people as ideal settings for harming themselves or others.

Prediction: Discovering Terrorist Attacks in Time to Prevent Them

The USACE intelligence (G-2) section is the first line of defense against terrorism. Operating within secured confines on the third floor of the Government Accountability Office building in Washington, D.C., USACE G-2 personnel provide credible, relevant, responsive intelligence products and mission area predictive analysis to Soldiers, civilians, and partners throughout the full spectrum of USACE missions. A combined team of Department of the Army civilians, contractors, and Reservists budget, manage, supervise, and evaluate all intelligence and intelligence-related security activities within USACE. G-2 focuses on providing worldwide situational awareness (from an engineer's perspective), deciphering relevant terrorism trends, and discovering specific threats to USACE personnel and property in time to issue warnings.

Gleaning intelligence from open and classified sources, USACE G-2 analysts create intelligence products and briefings for USACE leaders and personnel by collaborating with other fusion intelligence cells from combatant commands; the Department of Homeland Security; and national intelligence agencies such as the Defense Intelligence Agency, the Central Intelligence Agency, the Bureau of Intelligence and Research, and the National Geospatial-Intelligence Agency. Increasingly, G-2 analysts collaborate with their colleagues in other intelligence organizations via subject-specific "communities of interest," such as the Homeland Security Information Network; the Central Intelligence Agency Analyst Space; and Intellipedia, a veritable Wikipedia® for intelligence which is sourced and refined by analysts from across the intelligence community.

Significant intelligence is often synthesized from a series of apparently unconnected, unusual incidents. One observation may be the missing piece in a puzzle that only the USACE G-2 intelligence analysts are working on. The section receives and analyzes all the suspicious activity reports submitted by USACE personnel throughout the world. But if nothing gets submitted, nothing gets detected. That's why it is important for USACE personnel to maintain high levels of vigilance and awareness and submit reports whenever something seems even potentially suspicious.

"The best intelligence fusion system in the world isn't worth a dime without high-quality inputs from the folks in the field. Having USACE employees tip us off to what they see out there is a critical step toward ultimately getting warnings disseminated in enough time to prevent an attack," explained a USACE G-2 spokesman.

Most USACE personnel are considered the consumers of intelligence. But they also play a part in intelligence production. On one hand, they have a duty to routinely "pull in" products that increase their broader situational awareness. On the other hand, they have a responsibility to "push out" pertinent data about their localities and experiences to intelligence analysts for evaluation and synthesis.

Protection: Engineering the USACE Fight Against Crime

USACE G-2 focuses primarily on terrorism threats. This effort is complemented by the USACE Contingency Operations–Protection Division (CECO-P), which focuses primarily on criminal threats to USACE property and personnel. Each year, millions of dollars in property is damaged or lost due to vandalism, larceny, arson, and misuse. CECO-P collaborates with base provost marshals, local law enforcement agencies, the Federal Bureau of Investigation, and the Army Criminal Investigation Command to reduce USACE exposure to crime and solve the crimes they couldn't prevent. Three times a year, instructors from CECO-P join forces with their colleagues in USACE G-2 to provide comprehensive intelligence and security training to newly appointed USACE park rangers from across the country. They meet for a week at the USACE Learning Center in Huntsville, Alabama. During their January training session, USACE CECO-P and G-2 instructors also provide advanced training to park rangers who have recently been promoted to supervisory positions.

CECO-P is responsible for monitoring USACE's anticrime and antiterrorism protective measures. Securing USACE operations begins with a robust awareness program including posters; electronic billboard messages; e-mail reminders; criminal alert notices; physical security inspections; and nuclear, biological, and chemical defense plans and training programs.

Suspicious Behaviors

In the course of your duties, look for and *report* behaviors and activities such as these:

- People:
  - Drawing or measuring important buildings
  - Concealing items under their clothing
  - Inquiring about sensitive information such as security forces, security measures, or the movements of Soldiers and employees
  - Intruding in restricted areas without proper credentials
  - "Accidentally" breaching security, intruding, or misrepresenting their identity
- Vehicles left in no-parking zones and/or vehicles without registration stickers or license plates
- Packages left unattended or out of place
- Loss/theft of secure information or secured materials
- Overflights

The Critical First Link

USACE needs the help of employees. Those who see something should say something. Too often, people assume that someone else has reported an incident and no one ends up reporting anything. USACE also needs to enlist the general public's help, especially the people who visit USACE projects and recreational facilities. Anyone who witnesses suspicious or criminal activity should call a local military police desk. All they need is the phone number.

Educating employees and the general public on their role in security is the genesis of the Department of Defense iWatch program. Championing the slogan, "iWatch, iReport, I Keep Us Safe," the program is a nationwide version of the neighborhood watch that is designed to encourage community members to identify and report suspicious behavior. Army iWatch sends posters and materials to USACE district commands to enhance their security awareness. The program also places ads in newspapers and on community message boards, billboards, local television, and the Internet. An offshoot of Army iWatch is the USACE Corps Watch Program, which targets community members and USACE employees. It is designed to heighten public awareness of the impact of crime at dams, lakes, navigational locks, recreational areas, and other USACE facilities.

And Corps Watch pays reward money. USACE has congressional authority to offer cash rewards up to $1,000 for information leading to the arrest and prosecution of individuals who cause damage to USACE property. Individuals who witness a crime or suspect that a crime has been committed against USACE property are encouraged to call the Corps Watch Program hotline toll-free at (866) 413-7970 to report information about theft, vandalism, or any other threats or suspicious activity against USACE property (available 24 hours a day). Callers can remain anonymous.

Vigilance: The Price of Freedom

Force protection largely depends on the personal involvement of everyone. The early recognition and reporting of potential terrorist and criminal activity is the first line of defense against those who intend to harm us or our resources. People should stay alert as they go about their daily business and become familiar with the normal routines of their neighborhoods, communities, and workplaces. Understanding these routines will help them spot anything out of place. And if you see something, say something.

Lieutenant Colonel Smith is assigned to Headquarters, USACE, as a U.S. Army Reserve intelligence analyst, and is currently deployed to U.S. Forces Korea to help develop its theater infrastructure master plan. He holds a bachelor's degree from Cornell University and a master's degree in public management from the University of Maryland School of Public Policy.

Developing a Trained and Ready Security Force Assistance Advisor Team

By Lieutenant Colonel Jared L.Ware

> *"The military advisory mission has become a key component of U.S. military operations—for the Army in particular—and we need to be good at it."*[1]
>
> *—Colonel Marc D. Axelberg*

The purpose of this article is to provide a framework to develop a trained and ready security force assistance advisor team (SFAAT) based on recent operational and training initiatives conducted by the SFAATs from the 30th Engineer Battalion, Fort Bragg, North Carolina. In early 2012, the battalion was tasked by XVIII Airborne Corps to develop an SFAAT to deploy to support operations in Afghanistan. Since that request, the battalion has trained and deployed one SFAAT, activated and deployed a second team, and conducted two mission readiness exercises at the Joint Readiness Training Center (JRTC) at Fort Polk, Louisiana. The battalion also provided a robust observer controller/trainer team to the National Training Center (NTC) at Fort Irwin, California, for an infantry brigade combat team (BCT) security force assistance brigade rotation augmented with a construction effects engineer battalion. From an engineer battalion perspective, it is imperative to understand the roles and missions of any SFAAT since that capability is the linkage between a BCT and its Afghan military counterparts. Moreover, the engineering mission sets will be easier to achieve with Afghan partners if the SFAAT is trained, integrated, and able to operate at a high degree of competence.

The SFAAT individual selection process, the individual training program, and a team level mission readiness exercise provide a strong foundation to certify and employ the team. The success of any SFAAT is due, in large part, to the emphasis placed on SFAAT operations by its higher headquarters. The effectiveness of an SFAAT in-theater is a direct function of the quality of the individuals selected, their training certification, and their employment as a distinct and integrated team. Since most SFAAT descriptions include "advise, coach, and mentor," it is necessary to select members who are confident and comfortable conducting those tasks at the individual and collective levels.

Leader Skills

In *Small Wars Journal*, Morgan Smiley advises that augmenting these teams with field grade officers as the lead advisors creates cohesive teams with the rank and experience necessary to deal with Afghan leaders and mitigates a clumsy manning process by creating a force structure primarily focused on advising and enabling the Afghan National Security Forces (ANSF).[2] Our unit selected strong field grade officers to lead the teams and chose experienced noncommissioned officers for the SFAAT. To increase the credibility of the SFAAT with its in-theater counterparts, advisors developed proficiency in basic combat skills, to include warrior and survival skills. Since these skills are critical due to the isolated and independent nature of the mission, advisors were expected to refresh them during predeployment training.[3] Once baseline proficiency is gained in these skills, it is imperative to test the SFAAT during a mission readiness exercise to validate individuals skill sets, collective training tasks, and team dynamics in a realistic operational environment.

SFAATs from the United States and other Northern Atlantic Treaty Organization nations have identical minimum training requirements. This is directed by the commander

of the International Security Assistance Force and is further outlined in memorandums by U.S. Central Command and Allied Joint Force Command Brunssum.[4] The U.S. Army, U.S. Marines, and North Atlantic Treaty Organization countries conduct SFAAT certification in three phases. Although the type and magnitude of training for each phase may differ slightly, there is commonality in the training topics. These include individual and collective combat skills training, advisor training, and a mission readiness exercise for final certification.

A certifying mission readiness exercise is vital to validate the strength, skill, and credibility of the team before it deploys. In his article discussing mentoring ANSF units, Canadian Lieutenant Colonel (now Brigadier General) W.D. Eyre said that "mentoring efforts and advice will fall on deaf ears unless the Afghan National Army (ANA) see the source as being credible."[5] After serving as the senior engineer observer controller/trainer at the NTC during a security force assistance brigade rotation, the importance of SFAAT credibility became more evident. This rotation for 2d Brigade, 10th Mountain Division, included two National Guard brigades that were reorganized into 64 SFAATs. The training format at the NTC followed a pattern similar to that conducted at JRTC. Current training regimens, particularly those at the training centers, rely heavily on situational training exercises to examine a potential advisor's response in a particularly complex environment. This is important to training advisors because situational training exercises are valuable in assessing responses from individuals in new and difficult situations, particularly in the context of another culture.[6] Having personnel to evaluate each SFAAT and having scenarios with realistic role players provides the optimal environment for determining the strengths and shortfalls of any team undergoing the training.

Given the SFAAT training framework with a JRTC rotation, it is reasonable to expect that the training principles would provide any team with the baseline capabilities to operate effectively in-theater. Given this framework, the initial XVIII Corps SFAAT from the battalion qualified as the best of 25 teams during that rotation. However, to achieve full mission success, an SFAAT must complete all individual training certifications and complete a credible, unbiased mission readiness exercise to fully prepare for the complexities and challenges of operations in-theater. Even with a solid training and certification program, areas for improvement will still exist, particularly for an SFAAT once it arrives in-theater and begins its mission for its higher headquarters and with its ANSF partners. One former advisor said that "in order to support their prescribed roles, planners must take careful design in the organization and resourcing of military advisors either employed as a unit or as individuals."[7] The topic areas listed are mainly based on feedback about the initial SFAAT employment once in-theater. Although the observations are limited in scope, the same trends were common in discussions with previous SFAAT advisors, the SFAAT in-theater, and with observer controllers/trainers during the NTC rotation.

Mission

In-theater, key leaders at the brigade level tend to lack a sophisticated understanding of the SFAAT mission and role. This leads to the inability to correctly use the SFAAT's full capabilities. This resulted in team members being assigned to perform traditional staff functions instead of their individual SFAAT role. For example, one member of the SFAAT was assigned to the brigade engineer cell and another was assigned to the governance stability transition team. This broke the SFAAT integrity model, degraded its overall effectiveness, and impeded its ability to establish a high level of rapport with ANSF counterparts. During the NTC rotation, BCT leaders without requisite individual training were reassigned to fill SFAAT positions. This created confusion about what role they would assume within the SFAAT, since they were not fully trained on the required tasks.

Metrics

Reporting credible counterinsurgency metrics requires proper SFAAT-led and SFAAT-reviewed assessments. Credible metrics cannot be properly evaluated at the brigade level without a credentialed SFAAT in place. In certain instances, the in-theater brigade reported higher levels of ANSF preparedness than that evaluated by the SFAAT. For example, ANA companies had leaders who were not capable of performing basic military decisionmaking process tasks or troop leading procedures. However, it was reported that these units were prepared for unilateral missions based solely on individual task assessments instead of collective-level assessments as defined by metrics evaluated by the SFAAT. The SFAAT must immediately establish its credibility with its higher headquarters and its ANA counterpart. During the recent NTC rotation, I viewed a combat outpost defense in which the SFAAT and its "ANA counterparts" (played by Fort Irwin Soldiers) had not even met before the defensive operations, thus skewing any credible counterinsurgency assessment of subsequent operations. This led to various interpretations of the overall readiness of the ANA unit, reduced the initial credibility of the SFAAT, and led to a "metrics mismatch" between the SFAAT and its higher headquarters.

Sustainment

The SFAAT lacks the baseline logistical support package required to properly deploy and sustain itself until employment into theater. The SFAAT depends entirely on its higher headquarters and outside resources for sustainment activities. Without a well-established command and support relationship, the team cannot function outside its assigned operational role. The team requires communications, logistics, and force protection support; and the BCT commander must rely on the advisors to provide the inputs required to coordinate joint patrols and the daily actions of the advised force.[8] In one example from Afghanistan, the SFAAT received four vehicles from its higher headquarters

upon arrival and linkup, three of which were non-mission-capable. The SFAAT does not have organic maintenance support and lacks a funding source to purchase vehicle parts or contracted services. A major issue at NTC was the availability, fielding, and logistical support of force tracking and communications equipment for SFAAT teams. Given the sustainment challenges to support multiple SFAATs, any BCT deploying to support a security force assistance brigade mission should strongly consider ***not*** reorganizing its organic brigade support battalion into SFAATs; the brigade support battalion is vitally important to the overall sustainment of all SFAATs from the BCT. The advanced logistical support provided by the brigade support battalion is the key to sustaining the SFAATs within the brigade.

Recommendations

Conduct a mission readiness exercise. Ensure that every person on the SFAAT completes required theater training requirements and that the team conducts a credible mission readiness exercise, preferably as an established team. The JRTC Advisor Academy provides premier training that consists of language and cultural training, key leader engagements with retired Afghan soldiers, and lessons on the advisor role in a deployed theater according to Field Manual 3-07.1, *Security Force Assistance*.[9] One SFAAT leader, in a previous rotation, remarked that his team learned ". . . security force assistance is the unified action to generate, employ, and sustain local, host nation, or regional security forces in support of a legitimate authority."

Build and sustain team integrity. This allows personnel on the team to know that their teammates are prepared and ready to assume their roles. It also allows members to learn each other's strengths and areas that require additional focus before linking up with ANSF counterparts. It is important to build team integrity during any training rotation, but it is equally important to sustain it into the deployment. Valuable lessons, which will eventually prove successful in-theater, are gained in the overall training framework.

Establish peer-to-peer advisory relationships. All SFAATs should be able to properly advise their ANA/ANSF counterparts at the command and staff levels and ensure that the process occurs parallelly, vertically, and horizontally. This includes sourcing SFAAT positions with personnel of the proper rank and experience level and engaging and advising counterparts at all levels. Personnel selected for advisory duties must be adept at the tasks and functions that they will teach to others and must possess the proper attributes to be effective advisors. Furthermore, it is important to provide advisor-specific training to SFAAT members before having them mentor ANA forces.[10] With a proper SFAAT structure in place, coupled with trained and vetted personnel, a more effective, accurate, and credible assessment of established counterinsurgency metrics can be attained, which reduces ambiguity for any ANSF readiness assessments.

Deploy cohort SFAATs that are organic or assigned to a brigade before deployment. This would provide the teams with an established command and support relationship and a dedicated brigade level staff to address any requirements. Moreover, it would address any mission and sustainment gaps, as the brigade would have a dedicated SFAAT mission and the resources required to meet mission success. Additionally, allow the SFAAT team leaders time to influence professional development training at training centers; develop tactics, techniques, and procedures; and prepare standing operating procedures.[11]

It would be presumptuous to imply that the recommended solutions will address all SFAAT development and training issues. However, the recommendations can be applied to any future SFAATs and their specific training requirements with reasonable validity. By properly applying the training framework and principles, it can be reasonably expected that any SFAAT would have the baseline knowledge and skills to perform its mission.

Endnotes:

[1]Mark Axelberg, "Enhancing Security Force Assistance: Advisor Selection, Training, and Employment," U.S. Army War College strategy research project, 22 March 2011, p. 27.

[2]Morgan Smiley, "Combat Advisor Unit for Afghanistan Transition," *Small Wars Journal*, 15 December 2011.

[3]Field Manual 3-07.1, *Security Force Assistance*, 1 May 2009, p. 7-4.

[4]Headquarters, International Security Force Joint Command, SFAAT predeployment training survey, October 2012.

[5]W.D. Eyre, "14 Tenets for Mentoring the Afghan National Army," *The Bulletin*, Volume 14, Number 1, March 2008, pp. 1-9.

[6]Brennan Cook, "Improving Security Force Assistance Capability in the Army's Advise and Assist Brigade," School of Advanced Military Studies, 10 May 2010.

[7]Joshua J. Potter, "American Advisors: Security Force Assistance Model in the Long War," Joint Center for International Security Force Assistance, Combat Studies Institute Press, 2011.

[8]Axelberg, p. 23.

[9]Field Manual 3.07.1, *Security Force Assistance*, 1 May 2009.

[10]Sean R. Pirone, "Security Force Assistance, Strategic, Advisory, and Partner Nation Considerations," thesis, Naval Post Graduate School, December 2010, p. 47.

[11]Headquarters, International Security Force Joint Command SFAAT, predeployment training survey, October 2012.

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Code of Ethics for Engineers

Engineers' Creed

As a Professional Engineer, I dedicate my professional knowledge and skills to the advancement and betterment of human welfare.

I pledge the utmost of performance.

To participate in none but honest enterprise.

To live and work according to the laws of man and the highest of professional conduct.

To place service before profit, the honor and standing of the profession before personal advantage, and the public welfare above all other considerations.

In humility and with the need for Divine Guidance, I make this pledge.

Adopted by National Society of Professional Engineers, June 1954





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