ENGINEER

The Professional Bulletin of Army Engineers

October-December 2006

Mission Essential



Headquarters, Department of the Army

PB 5-06-4 Approved for public release, distribution is unlimited.

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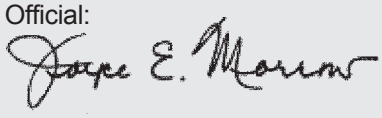
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Engineer (ISSN 0046-1989) is prepared quarterly by the United States Army Engineer School, 320 MANSCEN Loop, Suite 348, Fort Leonard Wood, Missouri 65473-8929. Periodicals postage is paid at Fort Leonard Wood, Missouri, and additional mailing offices.

POSTMASTER: Send address changes to United States Army Engineer School, ATTN: ATSE-DP *(Engineer)*, 320 MANSCEN Loop, Suite 348, Fort Leonard Wood, Missouri 65473-8929.

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) 563-4104, DSN 676-4104; e-mail address: *<engineer@wood.army.mil>;* Internet home page: *<http://www.wood.army.mil/engrmag/default.htm>.*

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ADDRESS CHANGES for personal subscriptions should be sent to the Superintendent of Documents, ATTN: Mail List Branch, Mail Stop SSOM, Washington, D.C. 20402.

ENGINEER

The Professional Bulletin of Army Engineers

October-December 2006 | Headquarters, Department of the Army | *Volume 36 PB 5-06-4*

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Front Cover: The 544th Light Diving Team platoon sergeant provides security during a recovery operation. Photo by Staff Sergeant Kurt Langley.

Back Cover: 2007 Best Sapper Competition poster designed by Captain Seth Wacker.

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Clear The Way

By Major General William H. McCoy
Commandant, United States Army Engineer School



Jill and I are honored, privileged, and excited to return to Fort Leonard Wood, Missouri. We cherish this opportunity to serve with a remarkably proficient, innovative, and enthusiastic engineer team. The diversity, commitment, and professionalism of the team (including Soldiers, Sailors, Airmen, Marines, civilians, community members and leaders, and all their respective family members and loved ones) make this a great place to train, work, and live. Our engineers' effectiveness is rooted in the training, doctrine, and materiel development occurring here daily. I would like to commend former and current key leaders of the Engineer School: Brigadier General Todd Semonite; Brigadier General (P) Jack Sterling; Command Sergeant Major Clint Pearson; the command team of 1st Engineer Brigade, including Colonel Mike Iverson and Command Sergeant Major Ioakimo Falaniko; and our dedicated service members, civilian employees, and families for their selfless, tireless, and innovative efforts to train, transform, deploy, and take care of our engineer team.

Our Army and Regiment are experiencing one of the most challenging, dynamic, and rewarding periods in their history. The selfless service and sacrifice of our Soldiers, civilians, and families in support of the GWOT is exemplary and a testament to their commitment to defending peace, liberty, freedom, and democracy. Support from families, FRGs, rear detachments, and communities are paramount to our success and ability to persevere in this challenge. Jill and I are incredibly touched and moved by the personal examples of courage, commitment, and selfless and patriotic service we've observed since the inception of this war. Each day we witness acts of kindness, strength, and passion which truly make our *Army Strong*.

Our Regiment's ability to support the incredible OPTEMPO associated with the GWOT—equating to multiple deployments by our engineer forces from Active Army, Reserve, and National Guard forces, while simultaneously accelerating transformation of some units—is indicative of the resolve, innovation, and flexibility of the total team. The fusion cell continues to serve as an outstanding means to affect transformation while sustaining support to the war in a synchronized and integrated manner. I'm inspired by current efforts to establish and sustain a fusion cell process for Reserve engineer forces integrated with efforts to transform the Active Army. Ongoing efforts by Active, Reserve, and National Guard engineer forces to train and transform themselves while simultaneously supporting the GWOT is vital to our ability to provide timely, relative, and responsive support.

Leader development is an absolute investment in our force and future. Quality leadership is essential to winning the war, transforming the force, and preparing for the future force. I encourage leaders at every level to seek and support developmental opportunities for themselves and their Soldiers through assignment opportunities or schooling. I recognize and appreciate the challenges associated with manning the engineer force in support of the ARFORGEN model. My challenge to engineer leaders is to allow Soldiers to attend and complete leader development opportunities despite the pressures of our existing OPTEMPO. We must address this challenge proactively and in parallel with crucial family and personal time during appropriate periods of the ARFORGEN model.

The United States Army Maneuver Support Center and the United States Army Engineer School are using every available resource to train, equip, and protect Soldiers. Leaders at all levels are passionately and aggressively committed to DOTMLPF integration and ensuring the timely development of the right doctrine and materiel to fight the current and future war. Efforts by organizations such as the Counter Explosive Hazards Center (CEHC) to address current challenges, such as IED defeat, at an unprecedented rate are indicative of the resourcefulness, initiative, and innovation necessary to accomplish the mission while safeguarding and protecting our forces. The Engineer School is the subject matter expert in mine detection and specialized search dogs, a proven capability in the theater of operations. The solutions are innovative, complex, and dynamic, much like the threat. Technology and materiel alone can't resolve the challenge. Leadership is the critical component to addressing these challenges as we've seen demonstrated time and time again since the beginning of the war. I applaud the efforts by our engineer leaders and Soldiers to establish, sustain, and enforce the standards and discipline to counter the threats to our forces, reduce and eliminate our vulnerabilities, and care for our Soldiers and families.

I ask that we continue to remember our Soldiers and civilians who have made enormous sacrifices in the service of our nation. Please reflect on their service and join me in keeping our brave deployed service members and their families foremost in our thoughts and efforts.

Lead The Way

By Command Sergeant Major Clinton J. Pearson
United States Army Engineer School



I hope that all of our engineer Soldiers and families had a happy and safe holiday season! As I reflect back on the many accomplishments of the past year, I am constantly reminded of the tremendous contributions and sacrifices made by our Active, Guard, and Reserve Soldiers and their families while our nation is at war. And as we begin the new year, I would like to welcome Major General William McCoy and his wife Jill back to Fort Leonard Wood as the Maneuver Support Center (MANSCEN) commander and commandant of the Engineer School.

In our continuing efforts to *Transform*, *Train*, and *Take Care of the Regiment*, I will provide you some insight by addressing the Noncommissioned Officer Education System (NCOES), situational awareness, and modularity.

NCOES. As we continue to transform the Regiment in concert with the Army, we are constantly adjusting our NCOES by implementing current lessons learned in our programs of instruction (POIs). Our goal is to maintain information relevant to missions our NCOs are performing. I am pleased to say that the engineer Advanced Noncommissioned Officer Course (ANCOC) and the Basic Noncommissioned Officer Course (BNCOC) are meeting this challenge head-on.

The continued construction of the MANSCEN NCO Academy forward operating base (FOB) by engineer NCOES students has added a great sense of realism to all tactical training, serving as an outstanding base of operations as well as providing realistic conditions for vertical and horizontal construction missions. In addition, ANCOC and BNCOC are continuously updating course material to keep up to date with the fielding of new equipment and techniques.

Soldiers enrolled in ANCOC and BNCOC will also have the opportunity to receive portions of the Search Advisor Course and will receive emphasis on sewage, water, electricity, academics, and trash (SWEAT); vertical and horizontal construction projects; lessons learned; and counterinsurgency operations. Lastly, to aid our leaders in training, we are leveraging the assets on Fort Leonard Wood by integrating search and mine dogs through demonstration and implementation during the special training exercise (STX).

Situational Awareness. One of the many challenges facing our Soldiers on a daily basis is situational awareness. To combat the information gap, the NCOES is testing recognition of combatants in urban environment, (ROC-U), recognition of combatants and improvised explosive devices (ROC-IED), and recognition of combatant suicide bombers (ROC-SB). These programs are designed as virtual trainers that a Soldier can use as a situational awareness training model dealing with combatants, IEDs, and suicide bombers.

The NCOES is working hand in hand with the Night Vision Laboratory to develop what may become one of the single most important predeployment training tools to help Soldiers and leaders know what's taking place on the battlefield. In addition, all Soldiers attending ANCOC and BNCOC will receive exposure to three programs and provide feedback directly to the Night Vision Laboratory to make the product better. Eventually, the ROC-U, ROC-IED, and the ROC-SB will be a Web-based individual self-development tool that every Soldier can access to train on virtual scenarios that they may be faced with while deployed. The training tool can be updated as the environment and conditions change.

Modularity. The Fusion Cell continues to facilitate weekly discussions on engineer units that are converting, activating to the new modular design with help from FORSCOM, HRC, and DA. The activations of the 4th Engineer Battalion, Fort Carson, Colorado; 7th Engineer Battalion, Fort Drum, New York; and 326th Engineer Battalion, Fort Campbell, Kentucky, in October bring the total number of modular engineer battalions to seven. The 11th Engineer Battalion, Fort Benning, Georgia; 5th Engineer Battalion, Fort Leonard Wood, Missouri; and 14th Engineer Battalion, Fort Lewis, Washington, will become modular units within the next few months.

In closing, I am extremely proud of our Regiment's Soldiers for their contributions and positive impact over the past year. I am especially proud of the sappers who are deployed around the world in harm's way. To those who have paid the ultimate sacrifice in the cause of freedom, justice, and the American way of life, neither you nor your families will be forgotten.

God Bless America!

Brigade Special Troops Battalions

Part II: Synergy

By Colonel Thomas H. Magness

This is the second of a two-part discussion on the brigade special troops battalion (BSTB). The first part, "All the Way In," appeared in the July-September 2006 issue of ***Engineer*** *and highlighted the need for full commitment to this new way of conducting maneuver support operations and the value added to the supported brigade combat team (BCT). This second article describes the specific behaviors that must be present within the BSTB in order for its diversity to be a strength and for these disparate units to fight and win as a team of teams.*

The United States Army has recently formed a new combat organization within its fighting brigades—the special troops battalion. Created by joining signal, intelligence, engineer, chemical, military police, and other specialized maneuver support units under a common command, this unit's leaders face a daunting task—build a team of teams out of these diverse functions. Somehow they must combine these dissimilar units into a cohesive, fighting organization and make them better than when they operated independently. The mission—for leaders ready and willing to step up to it—is to create *synergy*.

Many Army leaders and BSTB team members continue to be challenged, however, to embrace the promise of this new organization. They are seemingly encumbered by memories of life as an independent. They cannot yet comprehend, for example, the advantage of replacing *independence* with *interdependence*. They do not know the potential greatness of the new team. They have not yet seen the value of working, fighting, and succeeding—as a synergized team of teams—together.

Successful BSTB leaders quickly realize that it takes more than a common headquarters for combat units to fight as a team. Commanders quickly recognize that T-shirts, logos, and battalion coins don't create synergy. Accomplished team builders know that much more is required. Successful mergers and acquisitions, even in the military, don't happen by themselves. Nope…that's the leader's job. This article then is a challenge to leaders to understand the concept of synergy, accept the absolute requirement for it within the ranks of the BSTB as the enabling characteristic for success, and put the appropriate energy behind measures to make it a reality.

Synergy

Synergy can be reduced to a simple mathematical equation: 1 + 1 + 1 > 3. The whole is made greater than the sum of the parts. Leadership is the action verb (*made* greater) that enables this possibility. Synergy, like so many other products of effective leadership, is only enabled by dynamic, visionary, positive leaders. Without leadership, you'll end up with acquisitions that never quite fit together (in a business sense, think of AOL™ TimeWarner) and an organization whose parts may actually decrease the value of the sum.

> Synergy – The interaction of two or more agents or forces so that their combined effect is greater than the sum of their individual effects.
>
> *www.Dictionary.com*

BSTB leaders are uniquely positioned and specifically trained and employed to add value to the team, to create functional, effective teams of teams. Leadership is the grease that eliminates the friction inherent in team building. It is the forcing function which ensures that the BSTB team of teams is, in fact, better than its former condition—more efficient, more productive, and a true combat multiplier for its supported BCT. But putting a group of separate companies and small units together under one roof does not guarantee synergistic success. Bigger is not better. *Better is better!* BCTs must be better served *with* the BSTB than *without* it.

Common Vision/Common Goals

Leaders must create the common purpose for which the team will fight—together. Groups, no matter how mature, must have a reason for working together that makes sense to all team members. Without common goals, organizational tendencies are to form stovepipes, build up barriers, and focus on themselves. The fact is, without the synergy that comes from working together, BSTBs are not able to deliver for their supported BCTs critical *battalion* missions such as—

- Route reconnaissance and clearance and assured mobility operations.
- Command and control of detainee operations.
- Nonlethal effects and targeting.
- Reconstruction and essential services project management.
- Forward operating base (FOB) defense.
- Support and secure BCT command and control nodes.
- Sensitive site exploitation (SSE).

Synergy comes from teams and team members who are truly committed to team play. Note that every mission on the list above requires multiple elements of the BSTB—working together to support the BCT. BSTB leaders must forge the overarching organizational vision that describes the intended end state and the accomplishment of team goals. Leaders provide the vision of how great the team can be under these new conditions. As is always the case with "the vision thing," leaders must believe it themselves and then share it (frequently…and with passion), first with internal customers (get your team to believe) and then with everyone else.

BIG TEAM – Little Me

Synergy is created when BSTB team members subordinate their personal and small-unit goals to those of the bigger team. They must have the belief and understanding that they are successful only if the team is successful. The old way of doing business must be replaced with a new way—better and fully integrated into the BSTB and its supported BCT.

Emphasize team goals at every opportunity. Use team rewards to highlight the benefits of working together. Reinforce behaviors that demonstrate the desired corporate mindset. The challenge for BSTB leaders is to balance the need to work as a team while still sustaining the competitiveness that drives subordinate units to do their best.

Synergy is achieved by teammates who seek ways to do their best while striving to make each other better. Streamlined processes and efficiencies are realized by team members who look outside themselves to help others. Information and lessons learned are shared. The whole is greater than the sum of the parts.

Interdependence

Synergy is only made possible by teams that replace independence with the newness of interdependence. Organizations whose members are mutually dependent on each other's unique skills, experiences, and capabilities are more inclined to work together toward a common, higher goal. They are also less inclined to grow in size and scope versus leveraging unused capacity elsewhere in the organization.

The United States Army Corps of Engineers® serves as an example of an organization working through the implications of interdependence. In its case, current budgets no longer afforded each regional organization to create fiefdoms known as "districts" with full functionality whose sole focus was internal—district goals and district customers. Now, regional and national centers of expertise are available to each Army Corps district, with designs for projects in one district completed by teams with unique capabilities in another. Business processes have been modified to reflect the elimination of stovepipes and local behavior. Not only does interdependence make better business sense, it produces a better product and leads to a more satisfied customer. The Army Corps is working hard to do more—and do it better—with less. That is synergy.

In the BSTB, interdependence might lead to better intelligence sharing between tactical human intelligence (HUMINT) teams (THTs) and engineer and explosive ordnance disposal (EOD) units regarding improvised explosive devices (IEDs). The signal company leverages its capabilities to facilitate THT and civil affairs (CA) team reporting. Resources are pooled to create security elements to enable the battlefield circulation of small maneuver support units such as THTs, CA, SSE, and EOD teams.

> The BSTB's ability to harness the energy of units that would normally have stayed in their own lane (signal and military intelligence) while deployed and use this to enhance the capabilities of the brigade was phenomenal. The BSTB's overwatch allowed me to double my capabilities for routine combat functions like forward operating base (FOB) force protection, convoy escorts, and mayor's cell responsibilities.
>
> *BCT Commander, 3d Infantry Division*

BSTB leaders must grow interdependent organizations that share everything—resources, information, skills, people, and facilities. It is only in doing so that the new organization is made greater than the sum of its parts. BSTB leaders must continually "wire-brush" the entire organization to identify unused capacity and determine how it can be applied to help the team, cross-level resources and capabilities between subordinate teams to meet higher-level goals, and build bridges and bonds between mutually dependent suborganizations that will create an effect that exceeds what could be done individually.

Accountability

Synergy is only realized when the team is literally, measurably, actually made greater. The parts must function together to make a better product—faster, more efficient, more reliable, safer, with a greater degree of mission accomplishment…better. Economies of scale must be realized. The supported BCT must see a better product.

Teams do well at that which a leader measures. BSTB leaders must develop metrics for the battalion and for each subordinate organization that can be used for mutual accountability. Create an environment where subordinates are free to "look outside their cubicles" while holding each other accountable for meaningful, quantifiable advancement.

BSTB leaders have the challenge of integrating company-size organizations—each with its own unique, specialized capability—into a functional team. Synergy is realized, for example, when military police are looking across the table at intelligence specialists, questioning various performance metrics and asking how they can help them do better. This measure of accountability and interdependence did not exist in the former organization. The team of teams, to be effective, must recognize that—despite how effectively one unit may perform its battlefield function—if one fails, the unit fails. Together, the whole is so much more powerful.

Team members must be accountable to one another to ensure a better team. This is only possible when they understand each other and appreciate how they each uniquely contribute to their success and the accomplishment of team goals. Use training opportunities such as officer and noncommissioned officer professional development programs to grow teammates who understand the team of teams. Leverage peer reviews to gain perspective on subordinates who work well within the team concept. Share best practices across functional areas to make each component of the whole better than if it were operating separately. Subordinates who understand that their success is only enabled by the success of every team member will begin to think outside themselves to help, and hold others accountable.

Growth/Maturity of the BSTB

An examination of one critical BSTB mission will hopefully point to the threads that demonstrate maturity as a battalion and progress toward making "the whole greater than the sum of the parts." A battalion assigned the mission to "conduct route reconnaissance and clearance operations" across the BCT area of operations looks at this not as a mission for its subordinate engineer and (attached) EOD companies but as a critical mission for the entire team. The following three levels demonstrate the growth and maturity of a synergistic organization:

Level 1. Focus the entire staff on a single mission. The initial steps toward synergy might begin by aligning the entire staff to focus on the accomplishment of a major team goal, such as the clearance of routes. Clearly, this is more than a single company effort and not one that can be passed from brigade to company without additional analysis (where is the value added?). The result is a synchronized *battalion* mission—and the initial signs of a maturing organization.

- S-1: Develop a casualty evacuation plan.
- S-2: Conduct detailed pattern analysis for IED "hot spots."
- S-3: Conduct adjacent unit coordination; develop a synchronized plan.
- S-4: Resource the missions.
- S-6: Develop a communications architecture to support the mission.
- Battalion maintenance officer (BMO): Establish a regeneration station for quick turnaround of route clearance equipment.
- Battalion command sergeant major (CSM): Conduct precombat check (PCC)/precombat inspection (PCI).

Level 2. Focus the entire task force on a single mission. Further growth and maturity is seen from a task force of interdependent subordinate units, each leveraging their unique capabilities to enable mission accomplishment.

- A Company (engineer): Conduct IED reconnaissance.
- B Company (intelligence): Conduct focused HUMINT, signal intelligence (SIGINT), and imagery intelligence (IMINT) for counter-IED operations.
- C Company: Provide additional communications coverage.
- EOD Company: Conduct rapid IED response.
- Headquarters and Headquarters Company (HHC)/BSTB: Fly the Raven unmanned aerial vehicle (UAV) over Tier 1 hot spots; integrate military police.
- HHC/BCT: Provide EOD security patrols; make the chemical platoon available for possible SSE missions.
- CA/psychological operations (PSYOPS): Conduct focused operations for counter-IED.

Level 3. A fully matured BSTB, with a demonstrated ability to focus the entire task force on a single mission, can similarly demonstrate value added for other assigned missions. This is clearly higher-level operations, but is without question the only way the battalion can possibly accomplish the *more* that is asked of it with the *less* with which it has been resourced. But, be sure, this is value added to the supported BCT.

- Base defense.
- Reconstruction command and control/essential services project management.
- Command and control of detainee operations.
- Training of host nation units (for example, engineer, EOD, military police).
- Military intelligence and signal operations.

A Challenge to Leaders

While jerseys do not a team make, BSTB leaders must be aware of the need to build a unique brand around their team of teams. Use cross-training and developmental assignments between organizations to foster a better understanding within subordinate units that otherwise

(Continued on page 13)

Staying Ahead of Change

By Captain Stephen T. Peterson

Every engineer battalion in the Active Army will redeploy, restation, or restructure (R3) this year. However, the 94th Engineer Battalion (Combat) (Heavy) completed all three of these transforming actions in the same calendar year. The 94th redeployed from Mosul, Iraq, in January 2006, and restationed from Vilseck, Germany, to Fort Leonard Wood, Missouri, in June 2006. Throughout the entire change, they restructured from a three-company engineer battalion (combat) (heavy) to a modular five-company construction effects battalion. This combined effect is best visualized by Figure 1, BG Todd Semonite's "Perfect Storm" slide.

Staffing and decisions for these three separate actions go through different commands and agencies without systemic coordination at the Army level. Decisions made through one process have effects on the other two; thus, changes are inevitable.

Keys to Staying Ahead of R3

Change is not the enemy or a threat; lack of proactive planning and execution is! Dynamic changes create dynamic fusion opportunities and continuity challenges. Just as we must stay one step ahead of the threat in Iraq and Afghanistan, leaders must proactively plan and execute to stay one step ahead of change. As the 94th modularized, it learned the value of staying one step ahead of change.

Proactive Planning

The battalion conducted an effective and deliberate military decision-making process (MDMP) for redeployment that clearly integrated battalion staff and company operations. However, the battalion did not use the same level of planning for restationing or restructuring. Actions in one phase had

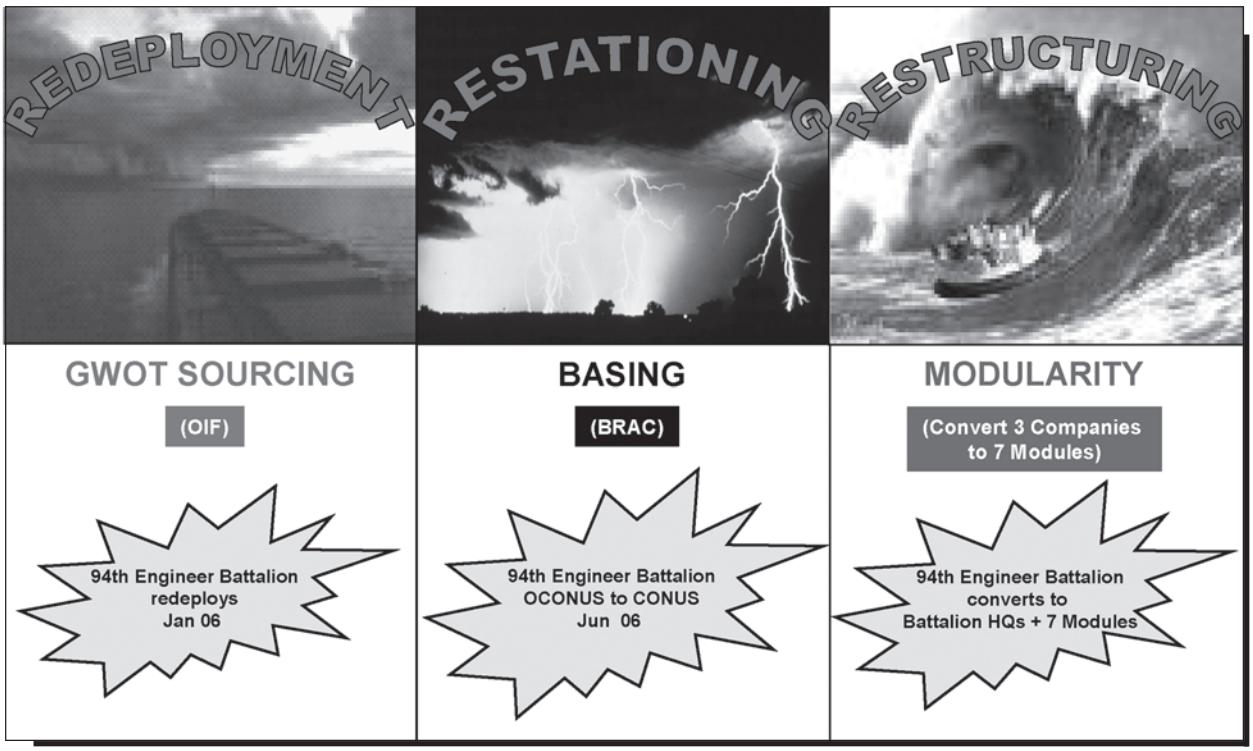


Figure 1

effects on the others. One operation order must address R3 as three separate lines of operation that are executed concurrently—a higher-level MDMP and planning process. The sheer planning requirement outweighed the experience and capabilities at the battalion level.

The greatest hindrance to a deliberate MDMP for restationing was the inability at the battalion level to change key assumptions to facts. Key assumptions dictate multiple branch plans. The best example of a key assumption is "unit move" versus "cadre move." The Department of the Army had to decide if it would be a unit move (everyone goes with the unit to Fort Leonard Wood) or cadre move (10 percent of the battalion moves to Fort Leonard Wood and 90 percent changes duty station based on the Army's needs). The final decision was made a month before the move, with the Army compromising between the two.

Instead of restationing with a coordinated plan, the move was executed from daily audibles. The battalion's main focus was clearing Vilseck, so more focus was needed on planning and coordinating the move to Fort Leonard Wood. The advanced echelon (ADVON) must establish a substantial presence at least six months prior to better assist in the planning of the move.

Restructuring was an underlying line of operation that started in Iraq and finished with fielding new equipment to the battalion. The end state was clearly defined in the approved modular modified table of organization and equipment (MTOE). However, the process of getting from the old MTOE to the new one was cumbersome, complicated, and covered in supply transactions. The 94th went from a headquarters support company and two line companies to a headquarters and headquarters company, a field service company, a vertical company (77th Engineer Company), two horizontal companies (103d Engineer Company and 232d Engineer Company), a concrete detachment (83d Concrete Team), and a survey and design team (156th Survey Team) and added the Fort Leonard Wood firefighter detachment (562d Firefighter Detachment) in October 2006. The number of lateral transfers of personnel and equipment was monumental. Although the battalion property book office effectively spaced the requirements over 16 months, it was supply-centric and not directly synchronized with other staff sections or battalion lines of operation. Never delay a supply or restructuring action if it can be done immediately.

Fusion

Through early identification of the "perfect storm" condition for the 94th and the creation of the United States Army Engineer School Fusion Cell, the Engineer Branch maximized opportunities and found funds for the tremendous cost of R3. Military and community leaders on both sides of the ocean took progressive action to ensure the success of the 94th Engineer Battalion upon restationing. The battalion received a warm welcome from both the military community of Fort Leonard Wood and the surrounding areas.

Based on proactive and forward-thinking leadership, the battalion set conditions for success at Fort Leonard Wood in 2006 while still deployed in 2005.

- Companies began lateral transfers of equipment to the new modular MTOE based on directives from the property book office.
- The battalion commander requested and received approval from the United States Central Command, the United States European Command, and the United States Forces Command to ship equipment straight from Iraq to Fort Leonard Wood.
- They carefully designated the cadre of leadership—an invaluable officer or noncommissioned officer in each staff section—that would take the battalion through the entire process, ensuring continuity.

The battalion command sergeant major convened a committee, the post redeployment effects committee for incident suppression and elimination (PRECISE), that consisted of first sergeants and junior enlisted who developed an effective action plan for the battalion's move from Iraq to Germany. The priority of effort for restationing revolved around four mission-essential tasks: *welcome*, *receive*, *integrate*, and *acclimate* every Soldier and family member to the new duty station. Each is a clear and achievable task.

Family Readiness Groups

The battalion Family Readiness Group (FRG) steering committee and the company FRGs were critical to continuity during this turbulent period for family members. Accurate and timely information flow greatly reduced the stress and uncertainty of R3. The active and responsive chains of concern and contact lists worked well during redeployment and restationing. FRGs were the glue of continuity during the unit move, quickly establishing a sense of community. The battalion hosted a consolidated FRG meeting in the first three months, but the companies started their own meetings in the fourth month. Transferring available FRG funds at the company and battalion levels provided resources to host events and welcome families to Fort Leonard Wood.

The significant reduction in pay from deployment to an outside the continental United States (OCONUS) assignment to a continental United States (CONUS) assignment created stress for the families. Also, OCONUS to CONUS moving expenses averaged twice as much as the dislocation allowance (DLA). Leaders and FRGs should facilitate financial planning and budgeting to reduce financial stress and other stresses inherent with a move.

Personnel

By far, the most stressful factor in the move for leaders, Soldiers, and family members was the late order process. Delayed orders meant unnecessary stress on the Soldier, family members, and the Vilseck community (Stryker Brigade inbound simultaneously). Once at Fort Leonard Wood, Soldiers and

family members were without their privately-owned vehicles and household goods for months.

The S-1 is a critical area for transitioning through restationing effectively. Evaluations, awards, legal actions, and orders affect all battalion members, whether leaving the unit or moving with the unit. Upon restationing, the S-1 must quickly establish inprocessing procedures, new unit identification codes, and new office symbols.

Communications

Shoot, move, and communicate! These are always the three critical tasks to every combat operation. R3 is all about moving and communicating. Similar to deployments, site surveys and advance parties are essential. An early and thorough site survey sets the conditions for everything that follows. Establish an ADVON early (180 days prior) with adequate personnel (at least one noncommissioned officer per company and staff section), and ramp-up as the time gets closer. Conduct weekly video teleconferences between the ADVON and the main body. A communication breakdown resulted in the battalion loading six military-owned demountable containers (MILVANs) of furniture that was covered by a furniture contract at Fort Leonard Wood.

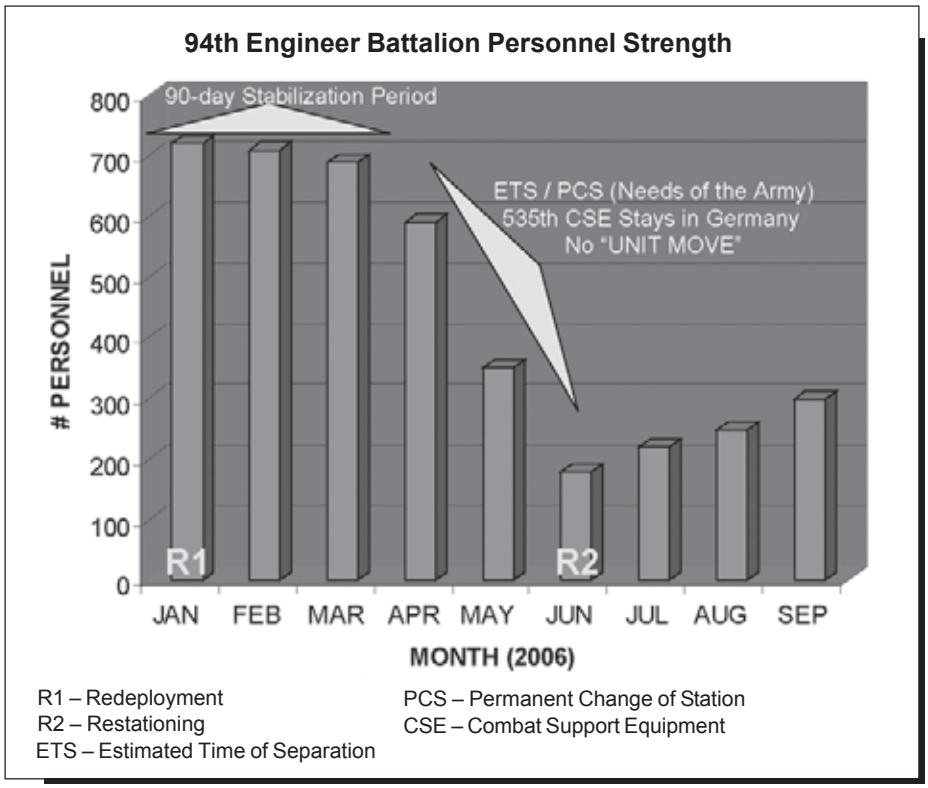


Figure 2

At company level, the process was extremely challenging for property and supply accountability. Mass consolidation of primary hand receipt holders before leaving Iraq was normal. For example, headquarters and headquarters company went from 24 primary hand receipt holders to 9 (designated Fort Leonard Wood cadre). Companies left almost 75 percent of their rolling stock in Iraq and conducted large-scale lateral transfers between companies. Lastly, the transition between unit level logistics system, S-4 module (ULLS-S4) and property book unit supply enhanced (PBUSE) adds another layer of property accountability.

R3 Costs

The 94th Engineer Battalion is not the first unit nor will it be the last to conduct R3 efforts simultaneously. The 94th will not be deployable for a while. The cost, monetary and time, of reestablishing all systems (operations, supply, motor pool, arms room, driver training, standing operating procedures, additional duties, and policy letters) is staggering—especially at reduced strength. Although Fort Leonard Wood and engineer leaders did their best to support the restationing on short notice, the battalion still operates out of temporary barracks, motor pools, arms rooms, and company headquarters. Dealing with new facilities and their shortages is a massive time and effort requirement for field grade officers and Soldiers alike. The process requires tactical patience. Each company has completed at least three 100 percent inventories in the last year, in addition to almost a 100 percent turnover of equipment in lateral transfers. Supply is the main effort and involves almost 30 percent of the time.

With the personnel changeover rate (see Figure 2), administrative systems must be solid. Leaders must factor and fight the extraordinary cost of untimely evaluations, late awards, inadequate sponsorships, delayed promotion boards and noncommissioned officer education system (NCOES) opportunities, and incorrect enlisted record briefs (ERBs). Most importantly, the stress and turbulence experienced is not directly measurable, but quite evident.

Conclusion

Leaders and Soldiers must embrace and plan for change. Leaders must maintain a positive attitude about change and highlight the advantages while mitigating the negative aspects. Our commander's three critical watch words successfully guided us through R3: *deliberate, disciplined,* and *focused.*

Captain Peterson is the company commander for Headquarters and Headquarters Company, 94th Engineer Battalion, Fort Leonard Wood, Missouri. He assumed command in Mosul, Iraq, in June 2005. He also served in Heidelberg, Germany; Baghdad, Iraq; Korea; Kosovo; and Fort Campbell, Kentucky.

CONSTRUCTION ENGINEERS: COMMITTED TO MAKING A DIFFERENCE

By Captain Samuel Dallas Jr., First Lieutenant Jonathan E. Rushin, and Second Lieutenant Kevin W. Wooster

With the coordination, detailed rehearsals, and preparations completed, Alpha Company, 46th Engineer Battalion (Combat) (Heavy), was staged to support a maneuver commander. Just moments after its mission linkup was established, the synchronized fighting force of infantry, armor, and engineer Soldiers departed the comforts and relative safety of Camp Ramadi. As the element closed on its destination—the dilapidated remains of a water treatment plant located on the outskirts of Ramadi, Iraq—an explosive ordnance disposal (EOD) unit confirmed that the terrain was clear and free of improvised explosive devices (IEDs) and booby traps.

Does this sound like a situation from a training manual? Perhaps, for a task force habitually supported by mechanized or combat engineers—but for the members of a combat heavy construction company, trailing on the heels of a maneuver force remains a bit unorthodox.

The mission was to construct Combat Outpost (COP) Jazirah—the latest in a string of facilities that will sustain the increased presence of coalition forces and the Iraqi police that is curbing the ongoing violence on the city streets. COP Jazirah serves as an important step toward standing up the first police force in the Jazirah district of Ramadi (the most densely populated city in Al Anbar) since the fall of the Hussein regime.

Two weeks prior to this mission, the 1st and 2d Platoons of Alpha Company (vertical construction platoons) were on the leading edge of the battle with elements of the 1st Brigade, 1st Armored Division, as they conducted counterinsurgency operations in the heart of Ramadi. This joint, combined, and multicomponent decisive operation was significant in that it saw the incorporation of several Iraqi army company tank units actively engaged alongside U.S. forces. Outfitted in T-72 tanks, the Iraqi army certainly sent a message to all onlookers. Consideration for winning the hearts and minds of the people, an adage implemented many years earlier, was still factored into the mission plan. This provided some assurance that the people of Iraq were committed to changing their nation.

In essence, the mission for both vertical construction platoons was quite similar: construct life-support facilities,



A plume of smoke rises from the Jazirah Iraqi Police Station after an attack involving an SVBIED.



Soldiers from Alpha Company, 46th Engineer Battalion, construct the framework for guard positions.

survivability positions, and force protection features for the COP. With designs in hand, each platoon set out to construct facilities—which later would be handed over to the Iraqi army—for the maneuver commanders. Despite daily mortar attacks, material shortages, sniper fire, and delivery constraints, the Soldiers of Alpha Company completed their projects in less than eight days. Lessons learned from these projects proved vital to follow-on missions for the battalion and sister units. Minimizing time on the objective was an overwhelming theme from each platoon. A key solution for meeting this goal emanated from the junior enlisted: complete the majority of prefabrication work behind friendly lines.

Armed with hammers and power tools, 2d Platoon set out to do its part in supporting the mission. Under constant threat of insurgent attacks, the platoon focused on the tasks at hand and the mission intent: improve the safety and quality of life for coalition forces and the Iraqi police. COP Jazirah was brought to life quickly. The platoon ate, slept, and worked at the developing facility. In less than a week, the compound was ready for occupancy by a police force that was still being assembled.

For the Iraqi police, the completion of COP Jazirah improved the retention of police recruits. Complete with running water, electrical power, and air-conditioning, the facility was a step up in the quality of living conditions for the Iraqi occupants. Initial recruitment of police candidates was held at the facility, and the number of recruits was nearly double what the operational environment commander had hoped for. The facility provided the courageous citizens of the Jazirah district the opportunity to take back control of their city streets.

Through numerous construction missions, Alpha Company has become proficient at building bases and outposts that will withstand enemy attacks. Outfitted with hammers and power tools and a seemingly endless supply of missions, the company of construction engineers braved the most dangerous areas in Al Anbar Province to help improve the safety of coalition forces and the Iraqi police. Implementing ideas gained from after-action reviews and tactics, techniques, and procedures not only enabled the unit to receive maximum benefits for follow-on missions but also allowed the Soldiers of Alpha Company the opportunity to take on additional missions, sharpen critical skills, and provide enduring structures to maintain the Iraqi army and police in the region.

In 2006, the Jazirah Iraqi Police Station sustained a complex attack involving a suicide vehicle-borne improvised explosive device (SVBIED). All of the structures erected by Alpha Company survived the blast. For now enemy assaults will continue, but the police force in the Jazirah district of Ramadi is here to stay—their presence and safety secured by the work of Alpha Company, 46th Engineer Battalion.

Captain Dallas is the commander of Alpha Company, 46th Engineer Battalion. His previous assignments include instructor, drill sergeant, drill instructor, S-3 assistant, and platoon leader. He holds a bachelor's in business administration from Maryland University and a master's in public policy and administration from Webster University.

First Lieutenant Rushin is the battalion intelligence officer for the 46th Engineer Battalion. He was previously a platoon leader. He holds a bachelor's in biology from the Virginia Military Institute.

Second Lieutenant Wooster is the equipment platoon leader for Headquarters and Headquarters Company, 46th Engineer Battalion. He holds a bachelor's in international affairs from Georgia Institute of Technology and is a graduate of the Airborne School.

Engineers Maintain Balance in Iraq

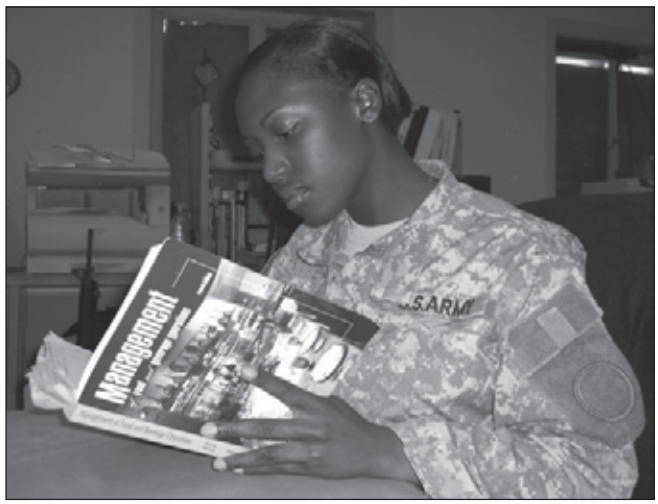
By Captain Michelle L. Vargo

At times, it's hard to be a Soldier, but still they must learn and execute their mission on the battlefield. They must sustain the demanding tempo of today's Army, sharpness on the battlefield, and endurance for the long fight, all while preserving a sound lifestyle and balance in their personal lives.

Every branch of the military is working as a team to win the Global War on Terrorism. Leaders and Soldiers are developing their skills and are more technically and tactically proficient than ever before. Coalition forces are currently executing Operation Iraqi Freedom (05-07), which includes many Soldiers who are in Iraq for the second and third time. This time around, these Soldiers are taking advantage of many resources and gaining military knowledge.

Education

Many Soldiers are using their time off to continue formal studies or to learn something new. A battalion promotions clerk studies nightly; she is taking an eight-week course offered through Central Texas College and currently has 41 college credits toward her degree. An operations sergeant completed his associate's degree from Central Texas College while deployed.



A Soldier studies for a college class.

An assistant construction officer is learning Spanish through the Rosetta Stone Program, available on Army Knowledge Online (AKO). A great resource for any Soldier who wants to learn a language while deployed, AKO aids comprehension with lessons, pictures, questions, and tests.

In the interest of teaching others, a supply sergeant taught criminology classes twice a week. His course prepared Soldiers for their College Level Examination Program (CLEP) exam, and they hope to obtain a certificate of completion, which in some cases can be used toward a degree.

Led by excitement from the film release of *The Da Vinci Code*, a chaplain held a four-week study group on the historical accuracy of the book, with six Soldiers participating. Some read the book or planned to watch the movie and said that the study helped shed light on the intriguing mystery behind the plot.



Asian-Pacific Heritage Month included cultural dances.

Physical Fitness

While some Soldiers focus on education, others work on physical fitness. A majority of Soldiers are taking advantage of the yearlong time frame to become more fit. Several participated in biathlons



Soldiers perform leading roles in a theatrical production.

organized by Logistics Support Area (LSA) Anaconda's morale, welfare, and recreation office. Although initially apprehensive about participating in the dual event, all participants finished and vowed to try a biathlon again. In August, deployed Soldiers participated in the Relay for Life to raise money for the American Cancer Society. Soccer, basketball, and volleyball have also been team-building sports during the deployment.

Entertainment

On LSA Anaconda, many other opportunities are also available. For example, personnel took the opportunity to express themselves by playing lead roles in a play titled *Bugs, Brits, Builders, Strange Bed Fellows*. A 25-person team performed the theatrical production that lasted 2 1/2 hours, ran for two days, and drew a 250-person audience on opening night.

Other personnel celebrated Asian-Pacific Heritage Month by participating in cultural dances from Hawaii, Samoa, and New Zealand. There was a luau atmosphere and ethnic food that included a pig roast.

Summary

Even though their primary purpose is to support Operation Iraqi Freedom, Soldiers in Iraq also need to maintain personal balance. Exercising the mind through formal or informal classes, staying physically fit, and participating in cultural events can help lessen the stress experienced during deployments to areas of conflict.

Captain Vargo is the battalion civil engineer for the 84th Engineer Battalion (Combat). She has served three years in the 84th and has deployed twice in support of Operation Iraqi Freedom.

("Synergy," continued from page 6)

might not have reason to interact. Why not assign a military police E-8 as an engineer company first sergeant? Why couldn't a chemical lieutenant serve as the signal company executive officer? Build a new brand. Celebrate team accomplishments and organizational progress toward the common vision.

Synergy is only possible when everyone is involved and is forged by leaders who get 100 percent from every team member. Mergers and acquisitions almost universally come with baggage—suspicions and concerns generated by ignorance of the potential for the new team of teams. Barriers must be knocked down, stovepipes eliminated.

Leaders must model the behavior that values the contribution of every single team member. Identify excess capacity and determine how to make it available to those who are overtasked. Think of your organizational diversity as a strength. Find "outside the box" opportunities to create synergy.

Synergy is fueled by communication and crosstalk. Economies of scale and a better use of shared resources will not generally identify themselves. Leaders must constantly wire-brush the organization to bring these issues to the surface. Constant dialogue about best practices and lessons learned, coupled with teammates held accountable to one another, will drive growth across the board. The total can exceed the sum of the parts—many times over.

The leader's job is to create synergy; to add value; to make this combination of disparate units *better* than their former, independent state. If 1 + 1 + 1 = 3, that's not synergy. That result was achievable in the organization's formerly independent state, before the creation of the BSTB. Of what value is a battalion headquarters that shows no value added? Bigger is not better. Better is better. This kind of measurable growth does not occur by itself. Nope…true synergy demands good, old-fashioned, "roll your sleeves up and make it happen" leadership.

Colonel Magness is an Army War College fellow at the University of Texas. Previously, he served as an observer-controller at the National Training Center (NTC) at Fort Irwin, California.

The opinions expressed in this article are those of the author and do not necessarily reflect the official policy or positions of NTC, the Army, the Department of Defense, or the U.S. government.



SURVIVABILITY PLANNING AS A STAFF PROCESS

By Major Andrew N. Liffring

Traditional survivability operations often involved an M9 armored combat earthmover (ACE) or a D7 dozer constructing multiple one-tier or two-tier fighting positions for mechanized forces and a small emplacement excavator (SEE) digging individual fighting positions for dismounted infantry. Because the threat has changed in the Global War on Terrorism, engineers must provide survivability positions that protect Soldiers from new threats. In recent years, units reduced the lethal effects of vehicle-borne improvised explosive devices (VBIEDs), direct-fire engagements, and sporadic mortar fire by constructing guard towers, bunkers, and entry control points. These survivability positions have increased the force protection posture of our force and reduced the rate at which the enemy is draining combat power, but is it enough?

According to the Department of Defense, more than 2,800 American Soldiers have been killed in Iraq and more than 21,000 have been wounded since the beginning of the war.[1] To reverse this trend, units should develop comprehensive force protection plans. Developing a survivability plan is a staff process that requires input from the S-2, engineer coordinator, fire support officer, S-3, and S-4 and begins with evaluating the threat, setting priorities, and synchronizing resources to ensure that the right resources are requested and delivered in an efficient manner.

Evaluate the Threat

Traditionally, units have been successful at planning survivability operations when the enemy consists of a large mechanized force. Units determined the number of two-tier M1/M2 positions that could be built in a given time by using the engineer battlefield assessment. Units then used tools such as a commander's card and a survivability matrix to track the status of these positions and reallocated resources as necessary to ensure that the plan was completed.

Today, the enemy is freethinking and uses its strengths against a unit's weaknesses. The enemy targets units that generally have low force protection measures—units that are static and predictable in their activities, lightly armored, or not well armed are vulnerable to attack. To increase its chances of success, the enemy conducts limited raids, ambushes, improvised explosive device (IED) attacks, VBIED attacks, and sporadic mortar attacks to inflict casualties, disrupt logistical operations, and force units to commit combat power to protect supply lines, thus allowing the enemy unrestricted movement

in the population centers to further destabilize the local government.

To protect the force from these attacks, the engineer coordinator must work closely with the S-2 to determine what types of weapon systems the enemy may use to attack, and then design survivability positions that offer protection against those weapon systems. If the S-2 predicts that the enemy will raid a guard tower on a forward operating base (FOB) perimeter with AK-47s, RPK machine guns, and rocket-propelled grenades, then the engineer coordinator should update the survivability plan to include an upgrade to the guard tower in order to meet the threat. If the S-2 templates a mortar attack on the FOB, then the engineer coordinator should include plans to build enough bunkers to protect the population of the FOB and design those bunkers to defeat a mortar. Field Manual (FM) 3-06.11, *Combined Arms Operations in Urban Terrain*, and FM 5-103, *Survivability Operations*, contain valuable data that should be consulted when designing specific survivability structures.

Set Priorities

Once survivability tasks are identified, they should be consolidated and prioritized. This prevents subordinate commands from competing for the same resources to complete the same projects. The engineer coordinator sets priorities by determining the greatest threat to the formation and then develops a survivability matrix showing the length of time each subordinate unit would receive survivability assets. The same process can to be done while fighting in the contemporary operating environment. The priority of survivability assets should be linked to the unit's most vulnerable sites, and a survivability matrix should be created to show subordinate commands the time, activity, and location of critical survivability assets.

Synchronize Resources

Synchronizing resources is one of the most difficult tasks in executing a survivability plan. Merriam Webster's® online dictionary defines *synchronize* as "to represent or arrange (events) to indicate coincidence or coexistence."[2] Materials, equipment, and labor should be arranged so that each support the execution of the survivability plan. Project management meetings attended by all parties involved—to verify work schedules and resource requirements—ensure that the project is completed on time, issues are addressed quickly, and communication is maintained. Ultimately, the goal is to provide Soldiers with the necessary protection to prevent the enemy from developing and executing plans against unprotected assets.

Conclusion

To help protect Soldiers from our enemies, units need to develop survivability plans by evaluating the threat, setting priorities, and synchronizing resources. These simple steps are essential in developing plans that are executable and that allow our forces to gain the advantage against our enemies.

It is essential that leaders are involved in the process. They must continuously inspect positions occupied by Soldiers to ensure that revetments, stringers, and sandbags are adequate, correctly placed, and do not show signs of structural failure. Staff officers and the leaders on the ground can make a big difference in increasing our force protection stature and decreasing casualties in-theater.

Major Liffring is assigned to Task Force Sinai, Fort Bragg, North Carolina, as the facilities engineer. He previously served as an observer-controller at the National Training Center at Fort Irwin, California; commander of Alpha Company, 37th Engineer Battalion (Combat) (Airborne), Fort Bragg, North Carolina; executive officer, 10th Engineer Battalion, Fort Stewart, Georgia; and platoon leader, 82d Engineer Company (Combat Support Equipment), Camp Edwards, Korea. He holds a bachelor's in mining engineering from the Colorado School of Mines and a master's in business administration from Norwich University.

Endnotes

[1]*Iraq Coalition Casualty Count, <http://icasualties.org/oif/>, accessed on 28 November 2006.*

[2]*Merriam-Webster Online, <http://www.m-w.com/dictionary/synchronize>, accessed on 28 November 2006.*



2007 Engineer Unit Directory

The 2007 United States Army Engineer Unit Directory is available online in Adobe PDF format at *<http://www.wood.army.mil/engrmag/Engr%20Unit%20Dir/2007Directoryonline.pdf>*. Take a moment and see if your unit's listing is correct. Changes to the Unit Directory can be made by calling (573) 563-7644 or e-mailing *<engineer@wood.army.mil>*.

Reserve Engineers Lead the Way for Urban Operation Construction at NTC

By Master Sergeant Tony A. Knecht

Reserve engineer units are helping make changes to the training facilities at the National Training Center (NTC), Fort Irwin, California. Operation Sand Castle, a coordinated effort between the NTC G-3 office and the United States Army Reserve Command (USARC), completed its second year of construction efforts, and Reserve participation is expected for another eight years. The mission is to provide upgrades to NTC training facilities and existing urban operation cities and to complete a new urban operation city—known as Tiefort City—consisting of 300 to 500 buildings. The new city will create a premiere training area for an entire brigade combat team (BCT).



Aerial view of Tiefort City

Operation Sand Castle

The 412th Engineer Command is the exercise executive agent responsible for the planning, logistics, and training of all participating units. The Exercise Support Command, the Reserve liaison office at Fort Irwin, provides assistance to the 412th. Operation Sand Castle provides Reserve engineer Soldiers the opportunity to train on many technical and tactical skills in a desert environment.

First Year

Many improvements were made to existing training facilities downrange—also known as the "box"—during Operation Sand Castle 2005. The exercise was conducted over two rotations, with the 411th Engineer Brigade (Combat) providing command and control for participating units. The 389th Engineer Battalion (Combat) (Heavy) served as task force commander during the first rotation, and the 365th Engineer Battalion (Combat) (Heavy) and the 854th Engineer Battalion (Combat) (Heavy) shared responsibilities during the second rotation. Other units participating included the 319th Engineer Company, the 770th Engineer Company, the 952d Engineer Company (Combat Support Equipment), the 328th Engineer Company,

the 425th Engineer Company, and the 673d Facility Engineer Detachment.

Units installed siding on the Langford Well complex and built windows, doors, and new structures in five different urban operation cities, making them look more like structures in-theater. Horizontal construction included creating a bypass road around Langford Lake—vastly improving the main supply route and enabling easier transportation of equipment, supplies, and personnel to forward operating bases (FOBs)—and constructing roads and drainage around Eastland City. Improvements to the old quarry site located on Tiefort Mountain included tripling its size, building a wooden headwall structure, and setting up a rock-crushing plant that produced all of the gravel for Operation Sand Castle 2006. Improvements were not limited to the "box"; plumbing services were provided to some of the facilities in the cantonment area, improving quality of life in those buildings.



Tiefort City road network

Second Year

Operation Sand Castle 2006 broke ground on the beginning stages of the new Tiefort City site. The 372d Engineer Group (Combat) was responsible for command and control over participating units. The 673d, working with the United States Army Corps of Engineers®, provided construction designs and data. The 733d Facility Engineer Detachment began working on the project designs for fiscal year 2007. The Construction Management Section, 411th Engineer Brigade, provided quality assurance during all construction phases. The Soldiers lived in FOB Santa Fe during their rotations, and the 137th Quartermaster Company provided laundry and shower support throughout the exercise. The first rotation consisted of Soldiers from the 368th Engineer Battalion (Combat) (Heavy), the 961st Engineer Battalion (Combat) (Heavy), the 321st Engineer Battalion (Combat) (Mechanized), the 728th Engineer Detachment, and the 718th Engineer Company (Combat Support Equipment). The second rotation consisted of Soldiers from the 863d Engineer Battalion (Combat) (Heavy), the 841st Engineer Battalion (Combat) (Mechanized), and the 285th Engineer Company (Combat Support Equipment).

Two 48- by 60-foot pre-engineered buildings, one 24- by 36-foot pre-engineered building, ten concrete masonry units, and thirteen skid-mounted modular wooden buildings were



Quarry site where gravel is produced for NTC construction projects



Capital City well site

completed. More than 2.85 miles of slum, residential, and interstate road network with drainage ditches were constructed, providing city infrastructure. One of the more challenging projects was upgrading a well stem drilled the previous year: a 16- by 70-foot discharge pad with 10-foot approach ramps was constructed, plumbing was installed, a 12,000-gallon storage tank and perimeter fence was erected, and an electrical box with service provided by a 10-kilowatt generator was installed. The 319th returned to NTC and produced gravel for the construction projects. With help from the 368th, 863d, and 841st, more than 18,000 tons of gravel were produced.

Tactical Training

In addition to the construction projects, Soldiers were able to receive tactical training on many of their mission-essential tasks. Operating out of an FOB environment, Soldiers had to cover entry control points, establish base camp operations, prepare quick-reaction forces, and conduct perimeter guard duties. One of the tougher jobs in the FOB was that of the mayor, who had the overall responsibility of security and all quality-of-life issues. Soldiers practiced many tactics, techniques, and procedures throughout the exercise and performed tasks such as jobsite security, improvised explosive device (IED) detection, IED reaction, route clearance, convoy procedures, convoy safety briefs, trip tickets, risk management, reacting to contact, operating a net control station, operating a retransmission site, reporting procedures, and warrior task training. Units were able to take advantage of M16, M203, M249, M9, M2, MK19, shotgun, mine-clearing line charge (MICLIC), and demolition ranges. Currently, an average of one unit each year fires on the convoy live-fire range. Units received feedback from observer-controller/trainers (OC/Ts) from the 2-310th Training Support Battalion and 1-347th Training Support Battalion. The OC/Ts worked closely with the Operations Group Divisional Tactical Operations Center (DTOC) and the engineer Sidewinder element on Fort Irwin. All leaders and Soldiers learned valuable lessons during their time at NTC. Training tactically and technically in a desert environment was challenging and realistic, incorporating many of the principles found in Army Field Manual 7-1, *Battle Focused Training*.

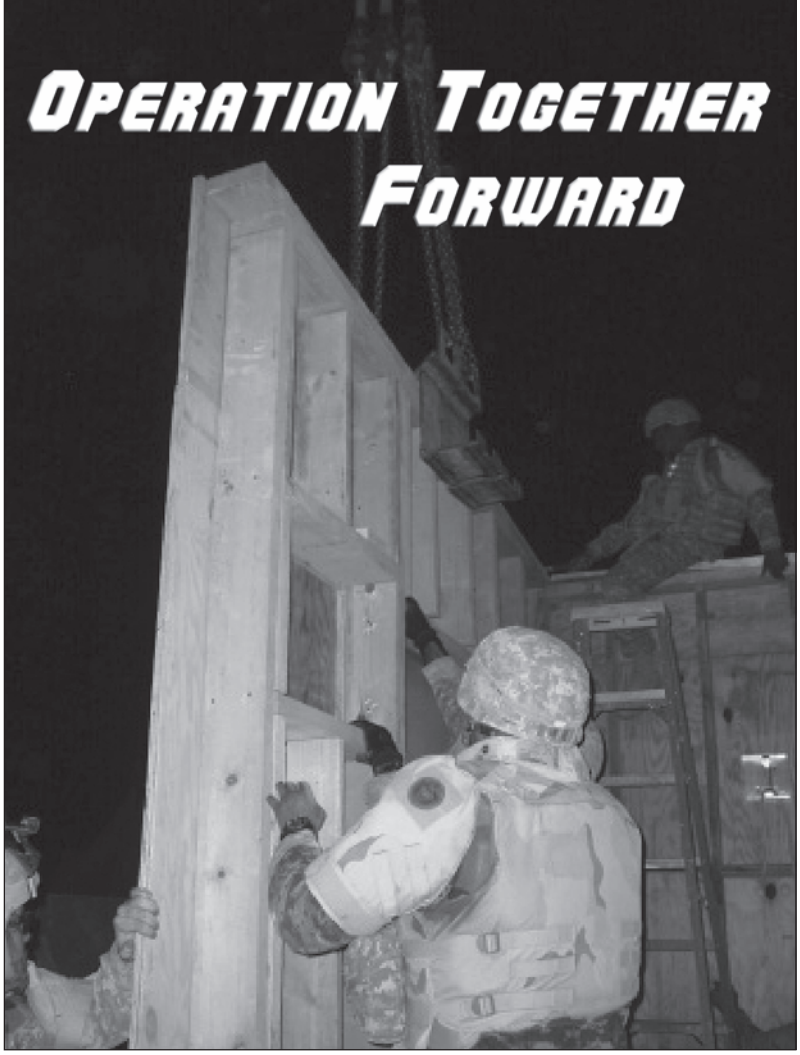
Future Exercises

An equipment pool was acquired and established from six different regional readiness commands from all over the United States and is stored for future Operation Sand Castle exercises at a new equipment concentration site in California. Units supplemented additional equipment needs by shipping their home station equipment. Maintenance and logistical operations were successful, overcoming the many challenges presented by the terrain and harsh desert environment.

Participating engineer units are setting up the foundation to improve future training events at the nation's premier training center. The new Tiefort City will support all armed services that conduct training at NTC. Future units will have a bigger, more complex training facility, which will enhance unit training and deployment preparation. Overall, the exercise was a rewarding and educational experience that will benefit leaders, Soldiers, and units for many years.

Master Sergeant Knecht is the Reserve Component liaison at the Exercise Support Command at NTC, Fort Irwin, California. Previous assignments include 952d Engineer Company (CSE), Paris, Texas; Detachment 1, 952d Engineer Company, Marshall, Texas; Military District of Washington (MDW) Engineer Company, Fort Belvoir, Virginia; 84th Engineer Battalion, Schofield Barracks, Hawaii; 4th Engineer Battalion, Fort Carson, Colorado; and 44th Engineer Battalion, Camp Nimble, Korea.

Operation Together Forward



By First Lieutenant Kurtis J. Schaaf
and First Lieutenant Michael P. Casey

With increasing violence in Baghdad, traffic flow needed to be regulated between the various areas of the city. Members of Headquarters and Support Company, Bravo Company, and Charlie Company, of the 84th Engineer Battalion (Combat) (Heavy), were attached to the 62d Engineer Battalion (Combat) (Heavy), from the 4th Infantry Division, to help with the mission. A convoy through Baghdad brought them to Forward Operating Base Loyalty to conduct Operation Together Forward.

In three weeks, the engineers constructed vehicle checkpoints on bridges and pedestrian checkpoints along walkways over the canal. Soldiers used cranes, loaders, and excavators to emplace concrete barriers, bunkers, and barbed wire to control traffic flow. While conducting these missions, the Soldiers were subjected to numerous mortar attacks and minor direct-fire incidents; fortunately, they suffered no casualties.

Upon return to the Victory Base Complex, engineers from the 84th were once again attached to the 62d for Operation Baghdad Security Belt. This operation consisted of blocking positions and checkpoints around the city to control traffic flow from areas such as Fallujah, Ramadi, and Mosul. Operating for extremely long hours, teams from the 84th emplaced blocking positions and checkpoints all around the city.

The checkpoints required a logistics support area because the police officers manned the checkpoints 24 hours a day. As part of the operation, buildings were built and placed at traffic control points to support the Iraqi police. Soldiers from Charlie Company emplaced the buildings in less than two hours, getting the mission completed quickly and efficiently.

The engineer support led by the 84th Engineer Battalion, in conjunction with the 62d Engineer Battalion and Iraqi security forces, allowed the timely completion of the Baghdad Security Belt. Operation Together Forward is just one of the many ways coalition forces strive to make a difference for the Iraqi people.



A Soldier ensures that the building floor is level.

First Lieutenant Schaaf is the platoon leader for 2d Platoon, Charlie Company, 84th Engineer Battalion. He is a graduate of the University of Nebraska.

First Lieutenant Casey is the platoon leader for the Earthmoving Platoon, Charlie Company, 84th Engineer Battalion. He is a graduate of the United States Military Academy.



Marine Combat Engineers
Repair Iraq's Roadways

By Corporal Stephen Holt

The sound of a cement mixer breaks the silence in the darkness on a lone Iraqi road near the city of Fallujah. Marine combat engineers are working in what is known as a "blackout" condition—no light other than the moon and the occasional glimmer of a flashlight. It's early morning, and the Iraqi sun will soon be rising.

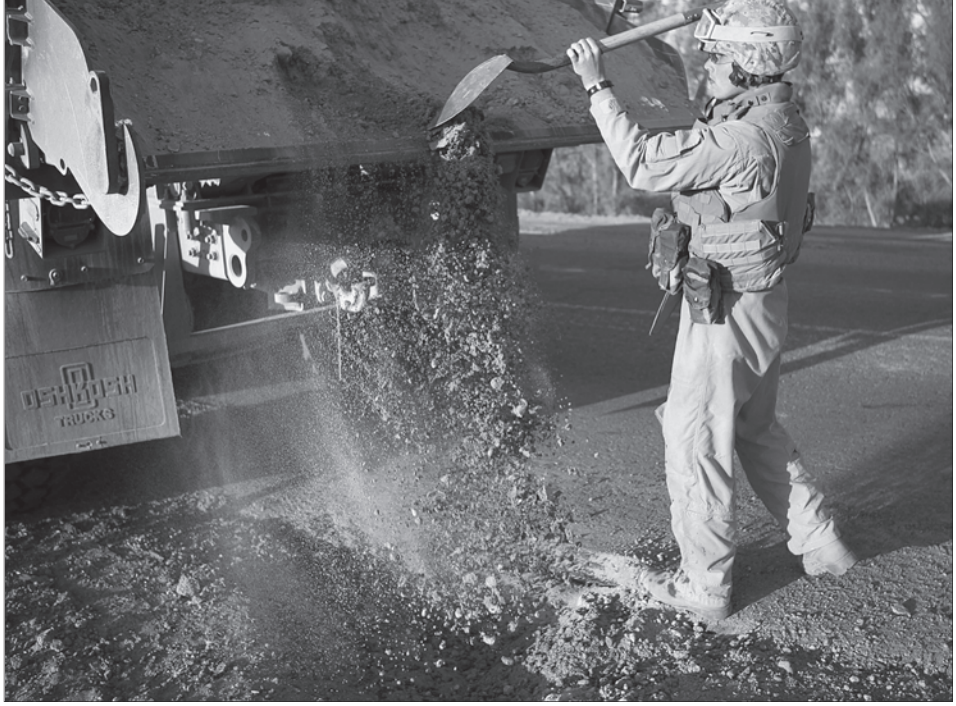
This is the time of day when many Americans get up for work, but the combat engineers have already put in an 8-hour day. The Marines of Charlie Company, commonly referred to as "Hell-Bent Charlie," of Combat Logistics Battalion 5, are hard at work repairing the roads that intersect the city and countryside of Fallujah.

Repairing Iraqi streets isn't quite like repaving a road in the United States. Instead of fluorescent orange vests and hard hats, Marine combat engineers carry rifles with optic sights and wear combat gear consisting of a protective vest, helmet, and ammunition—for a combined weight of more than 50 pounds. These roads, which are traveled by Iraqi citizens along with coalition and Iraqi security forces, are constantly damaged by roadside bomb attacks, and fixing them is crucial to the movement of supplies and troops in the area. In addition, the work is helping to rebuild the Iraqi infrastructure.

The night repair mission begins right after dusk with a quick meeting to discuss the mission and the latest intelligence findings. Last-minute gear checks are conducted before leaving the security of Camp Fallujah. Charlie Company goes straight to work, quickly filling two holes as soon as it leaves the confines of the camp.

Soon the company encounters the very threat it is trying to fight—an improvised explosive device (IED). Security is set up, and the explosive ordnance disposal team is called. The potentially deadly device is neutralized in minutes, and the Marine road workers press on. These roadside bombs are a favored weapon used by the enemy to wreak havoc on coalition forces. The threat of IEDs is one of the main reasons these Marines are on the road. The roads, which have fallen into disrepair over the years, are a favorite place for insurgents to place IEDs.

Various teams within the company have specific jobs and responsibilities. The teams may be tasked to provide security,



Left: A Marine shovels dirt from the back of a dump truck during a route repair mission.

Below: Freshly mixed concrete is poured into a crater created by an IED.

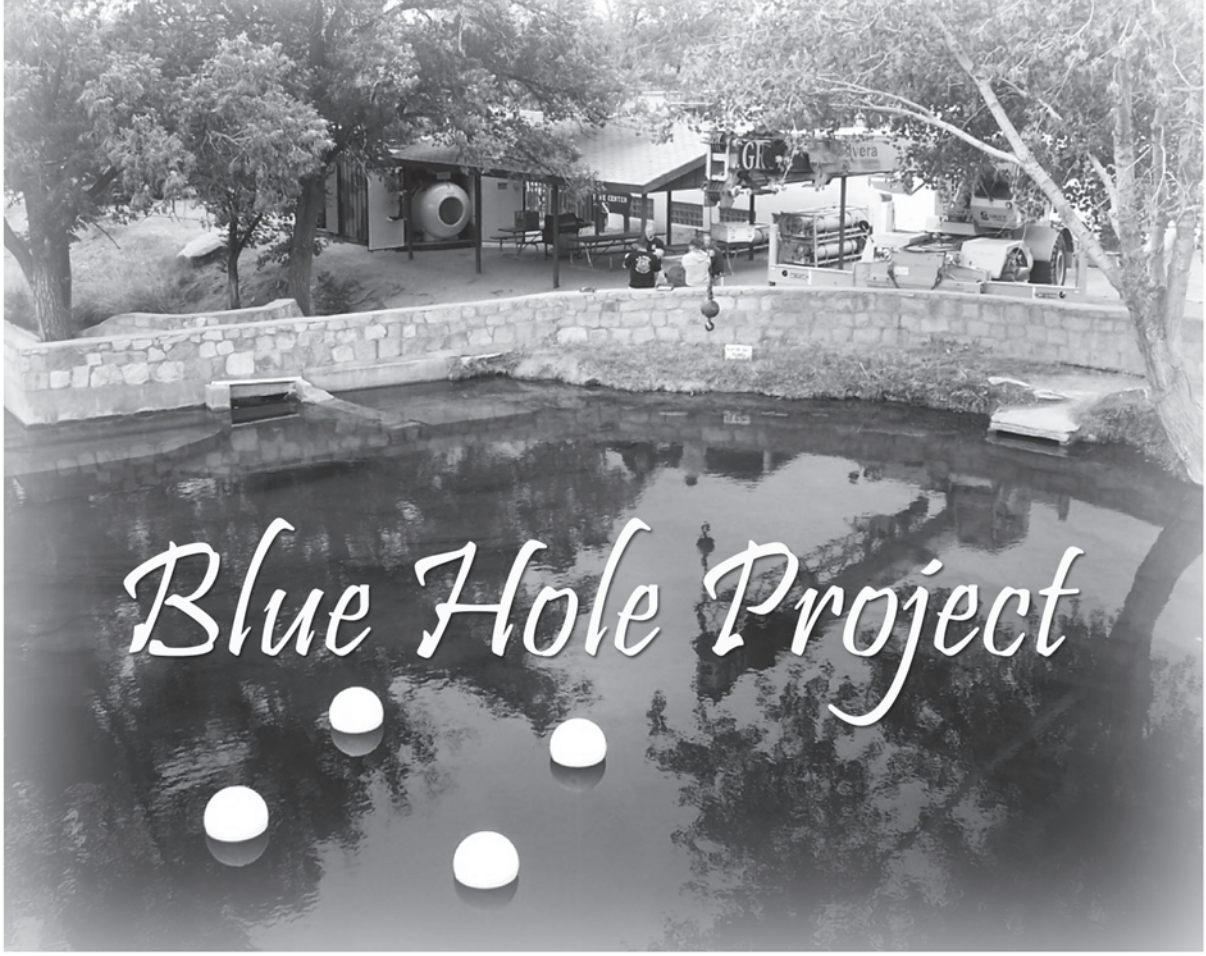
survey a crater to make sure it is safe to repair, or conduct the actual repair. For the craters to be repaved efficiently, these teams must work together while performing their individual tasks. The Marines have to work fast to avoid being a target of insurgents and still perform their job with precision. Many of these missions have been subject to deadly sniper and mortar attacks.

Surveying is the first step to repairing a road. Many factors must be calculated to properly repair a crater—size of the hole, depth of the hole, and time needed on-site. For a crater to be filled properly, dirt is molded into a foundation and then cement is poured in. After smoothing off the top of the quick-drying road patch, Charlie Company searches for the next area in need of repair.

Working with hundreds of pounds of concrete mix and dirt, in temperatures well above 100 degrees during the day, is a physically demanding job for these Marine combat engineers. But the results of their efforts are evident every time a convoy travels a road that has been made safer by their work.

Corporal Holt was temporarily assigned to Camp Taqaddum, Iraq, as a combat correspondent. His duty station is Camp Pendleton, California.





Blue Hole Project

By First Lieutenant Trent D. Geisler

The Blue Hole is one of Santa Rosa, New Mexico's, greatest natural resources and a geological wonder. It has a water depth of approximately 81 feet, and the water temperature stays at a constant 61 degrees Fahrenheit. An artesian spring from an underground source supplies water at a rate of more than 3,000 gallons per minute, and this rate of water flow creates a large amount of natural erosion as rock and soil are loosened and fall to the bottom. Along with the natural erosion, a former Santa Rosa city administrator ordered rock and debris dropped in the Blue Hole to close off the opening to the cavern system located at the bottom. This decision was partly to discourage divers from attempting to navigate the caverns, because many would run out of air or become lost and disoriented and were unable to find their way back.



Divers prepare to perform in-water checks before leaving the surface.

The massive amounts of debris, both natural and man-placed, cut off the artesian water flow into the Blue Hole. But the debris could not stop the flow for long—the water found new ways of pouring into the hole. The water soon forced its way in from the sidewalls, causing an even greater amount of erosion. This new erosion from the sidewalls deteriorated the hole's stability, and it was placed in an emergency state of repair.

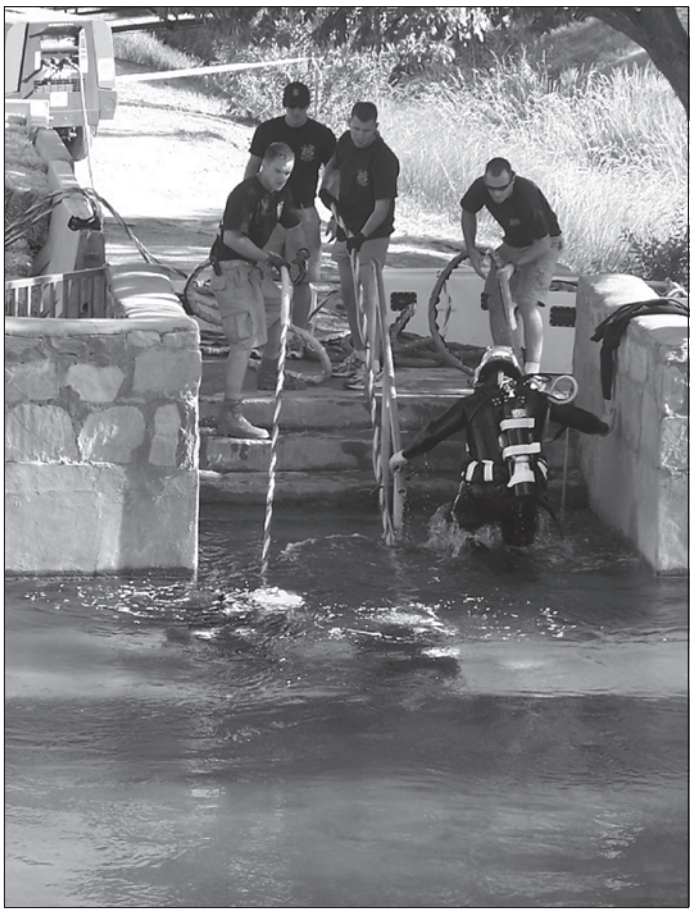
Twenty years after the initial decision to fill in the hole, the United States Army Corps of Engineers® Albuquerque District called on Army divers to remove the rock and silt that clogged this natural wonder. In late Spring 2006, 23 members of the 74th, 86th, 511th Engineer Light Diving Teams and the 569th Engineer Dive Team from Fort Eustis, Virginia, deployed to Santa Rosa to conduct dredging operations.

The plan to remove the debris called for three techniques: manual labor, a hydraulic submersible pump system, and an



A crane lifts a basket of rock and debris from the bottom of the Blue Hole.

airlift system. The manual labor technique involved the strongest divers picking up the larger rocks and placing them into a basket. The second technique consisted of a hydraulic submersible pump suspended approximately 40 feet in the water column with intake hoses extending all the way to the silt bottom. Divers would call for "switch on," and the pump would suck a silt and water mixture at a rate of 800 gallons per minute. The third technique was a basic airlift consisting of an 8-inch hose that pumped out small gravel and rock. Air was supplied to the hose at a pressure of 110 pounds per square inch, resulting in a flow of more than 1,000 gallons per minute.



Tenders, who provide surface support, pull the divers from the water.

Each method was very productive because the divers worked all three techniques at the same time. The dive plan called for three divers to dive to a depth of approximately 81 feet for 90 to 100 minutes. At an altitude of more than 4,600 feet, the equivalent diving depth is 100 to 110 feet, and the decompression schedules were modified accordingly. Using surface decompression, the divers spent anywhere from 38 to 51 minutes in the hyperbaric recompression chamber, breathing 100 percent oxygen to reduce the amount of time needed to off-gas the residual nitrogen left in the body.

Due to the dive plan using surface decompression schedules, the divers were able to complete more than eight hours of underwater work each day, which resulted in more than 100 cubic yards of rock and more than 120 cubic yards of silt being removed after 21 diving days. The mayor of Santa Rosa and the Corps of Engineers were extremely pleased with the Army divers' efforts—they worked longer, harder, and more efficiently than any commercial dive company hired in years past. The divers' hard work and dedication to the mission assured future training opportunities at the Blue Hole in the years to come.

First Lieutenant Geisler is the team leader of the 74th Engineer Dive Team (Light) at Fort Eustis, Virginia. He is a graduate of the United States Military Academy.



Army Divers
Conduct a Pier Rehabilitation Mission

By First Lieutenant Timothy M. Mitroka

In July 2006, fifteen divers from the 86th Engineer Team (Dive) traveled to Jersey City, New Jersey, to conduct a mission for the United States Army Corps of Engineers® New York District. The team spent three weeks rehabilitating the docking piers and quay walls at the Caven Point Marine Terminal where numerous Corps vessels—that travel through New York and New Jersey waterways collecting or salvaging debris or wreckage and conducting surveys—are docked.

The mission focus was replacing 98 damaged cross brace support boards under the piers. The average size of the boards was 8 feet long by 3 inches thick by 10 inches wide. The removal process consisted of divers in the water using an underwater hydraulic impact wrench to loosen and remove hardware, which was usually covered with barnacles and rust. Once freed, a line was tied around the board and a team on the surface lifted it out of the water. Because some of the hardware was corroded, an underwater hydraulic grinding



A dive supervisor inspects a surface-supplied diving helmet before deploying a diver into the water to remove debris from under a boat lift.



One diver uses a hydraulic impact wrench to tighten a board in place while another holds the hardware in place from the other side.

tool or cutting torch was used to cut boards free. Once the boards were removed and on the surface, another team cut and drilled holes in new boards to match the old ones. The new boards were attached using new hardware to keep them in place for the next few years.



A hydraulic grinder is used to cut off rusted bolts before removing a support board.

Other tasks included replacing a 40-foot wooden bumper. The bumper is replaced annually because it functions as a pivot point on a quay wall for one of the larger vessels. In a year's time, the bumper becomes severely chipped, and the bolts securing it in place begin to protrude and scrape up against the vessel when it's docked. The team used a small crane to recover a submerged 90-foot section of a horizontal brace that broke off from its support piles. Using the crane, the team repositioned this large section and secured it so it would not break off again. Divers, using their surface-supplied diving gear, sprayed out debris from underneath the boat lift. The team also installed a buoy 75 feet out from one of the terminal's quay walls to warn off boat traffic from a shallow area that's piled with rubble from an old demolished building.

The mission was a success, and the repairs significantly increased the structural integrity of the piers and quay walls. This pier rehabilitation mission has been an annual mission for the past few years, and the team always looks forward to working with Caven Point Marine Terminal. Not only does it provide an opportunity for the Soldiers to train and increase their proficiency in using underwater hydraulic tools, but they are able to conduct small-scale underwater construction operations as well.

First Lieutenant Mitroka is the platoon leader for the 86th Engineer Team (Dive). He was previously assigned to Delta Company, 577th Engineer Battalion. He is a graduate of the United States Military Academy.



Photo by Robert H. McElroy

Pohakuloa Training Area Celebrates 50 Years of Service to the Military

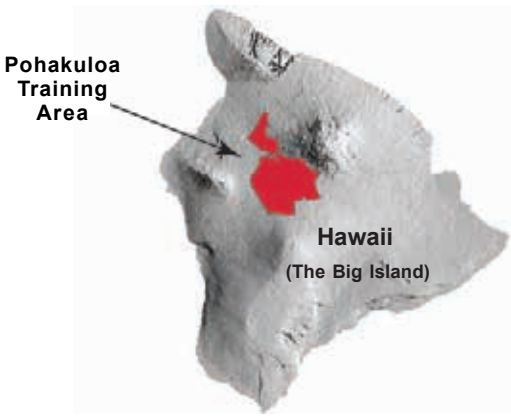
By Mr. Robert H. McElroy

Recently, Pohakuloa Training Area (PTA), on the Big Island of Hawaii, celebrated 50 years of service as the prime military training area in the Pacific Region. First used as a Marine Corps artillery base during World War II, the 133,000-acre PTA came under Army control following the war. In the mid-1950s, Oahu-based Soldiers built the Quonset huts that have become the post's signature building.

Over the years, PTA has hosted units from every American military service, as well as military personnel from allied nations and other federal agencies. The post's numerous training ranges, impact area, and remote location make PTA an ideal place for up to battalion-size units to train.

Although the military has changed dramatically over the last 50 years, the mission of PTA has not changed—to support and sustain (the warfighter) military training. But even though we are a nation at war, it is also important to balance the training mission with protecting the environment. To that end, Hawaii has dedicated personnel and resources to ensure that its more than 300 sensitive cultural resources are here for generations to come. Balancing the training requirements of the military while promoting environmental sustainability practices is a top priority for the Army Installation Management Agency.

As the Army transforms and Stryker brigade combat teams take their place in the way the Army fights, PTA will likely become even more important. Some consider PTA the third most significant Stryker training facility—behind Fort Irwin, California, and Fort Polk, Louisiana—and a linchpin in future Stryker training. The Army is investing millions of dollars in PTA because of its strategic importance to the future of the Army and other military services in Hawaii and the Pacific.



A commemorative service was held at PTA to mark the 50th anniversary, which included the blessing and unveiling of a pohaku or stone, as well as recognition of all the Soldiers, Marines, Airmen, and Sailors who have trained and worked at PTA over the last half century.

Mr. McElroy was the Pohakuloa Training Area Public Affairs Officer at the time this article was written. He is now the Public Affairs Officer for the United States Army Area III Support Activity, Camp Humphreys, Korea.

411th Engineer Battalion Trains at Pohakuloa Training Area

By Mr. Robert H. McElroy

Alpha Company, 411th Engineer Battalion (United States Army Reserve), recently completed its annual training rotation at Pohakuloa Training Area (PTA), on the Big Island of Hawaii. (See article on page 26.) The training was especially important because it had been more than a year since the company had been together for longer than a weekend drill, and half of the Soldiers—to include the company commander—were new to the unit.

The commander's goals for the annual training were to qualify Soldiers on individual and crew-served weapons and conduct individual skills training and combat lifesaver training. Once those tasks were completed, his focus became training Soldiers on sustainable military occupational specialty (MOS) skills for engineers.

Since there were approximately 35 new Soldiers in the unit from the rank of private to specialist, it was necessary for the experienced noncommissioned officers (NCOs) to teach the new Soldiers. Since many of the NCOs had operated heavy equipment in Iraq, they could teach the young Soldiers how to operate it safely—always a major concern during training.

When the Soldiers had completed weapons qualification and combat lifesaver training, they turned their attention to several engineer projects for PTA that would test the skills of both the company's vertical and horizontal platoons. The Horizontal Platoon focused on improving selected roads and ranges. At the site of PTA's new Known-Distance Range, engineer Soldiers graded the ground and laid crushed rock



Soldiers from Alpha Company, 411th Engineer Battalion, construct a range house/observation tower during their annual training.



A load of freshly-crushed rock is dumped on a new road being built at Pohakuloa Training Area.

along the road. They repeated the same task at the site of one of the forward operating bases (FOBs) in the training area. The Vertical Platoon spent its time building a new structure in the training area and renovating older ones in the cantonment area.

At Pu'u Ahi, deep in the training area, engineer carpenters built a combination range house and observation tower for use by Army aviation attack-helicopter units. And on PTA's cantonment area where the troop billets and support facilities are, the engineers renovated a Quonset hut containing billets and a shower for female Soldiers.

The skills the new engineer Soldiers gained during their annual training will help them greatly the next time the 411th deploys. When the unit deployed to Iraq, it was attached to the 1st Cavalry Division from Fort Hood, Texas, and completed several carpentry and construction projects.

Despite the company's focus on unit and individual training and construction projects, some Soldiers found time to visit students at Keaau Middle School, on the east side of the Big Island. Alpha Company Soldiers joined PTA Soldiers in handing out dictionaries and other school supplies to the students.

For one staff sergeant, annual training was all about leaving something behind: the knowledge he imparted to his young charges and the range house they built together.

Mr. McElroy was the Pohakuloa Training Area Public Affairs Officer at the time this article was written. He is now the Public Affairs Officer for the United States Army Area III Support Activity, Camp Humphreys, Korea.

Photos by Robert H. McElroy.

News and Notes

412th Engineer Command Assumes Command of the 926th Engineer Group. Approved by the United States Army Reserve Command (USARC), the 412th Engineer Command, located in Vicksburg, Mississippi, assumed command of the 926th Engineer Group, headquartered in Montgomery, Alabama. The signed memorandum from the USARC Chief of Staff paved the way for the 412th to provide command and control support to 5,000 Soldiers in a geographic area spanning from West Virginia to Florida and west to Kentucky. This was the first time the unit has had a downtrace since 1974.

First in a series of realignments, this move is part of the Army Reserve's transformation, called the Army Reserve Command and Control (ARC2). Within the next two years, the 412th will have a total downtrace of more than 11,000 Army Reserve Soldiers in an area that spans from Maine to Florida and extends west to Kentucky.

Transforming the 412th's structure to support thousands of Army Reserve Soldiers—while transforming the warfighting mission to better support the United States Army Corps of Engineers® and the Army's transformation and simultaneously fulfilling existing global missions—will be complex. Fortunately, according to the 412th commander, our exceptional Soldiers and civilian employees, supported by well-prepared families and understanding employers, are ready for the task.

The 412th provides wartime support in plans and exercises to the United States European Command and the United States Forces Korea and maintains three forward detachments in Germany, Hawaii, and Korea. Under ARC2, the 412th will also provide training and readiness oversight to units and Soldiers under three subordinate brigades, while still maintaining go-to-war missions worldwide.

In addition to major regional contingencies, the 412th continues its current mission of worldwide support to the Global War on Terrorism with more than 70 Soldiers deployed around the globe. The challenges of transforming while at war, while increasing the mission load, are all part of the 412th's mission of providing responsive, superior engineer support anywhere in the world. The unit stands ready to undertake the challenge.

The point of contact is Carol Coleman at (601) 631-6102 or <*carol.coleman2@us.army.mil*>.



Summer Training at the United States Military Academy

By Captain Ryan J. Morgan

The Department of Military Instruction mission at the United States Military Academy states that it will *"train, educate, and inspire cadets in the essence of Warfighting and the Profession of Arms…in order to develop competent future Army officers."* Until recently, that mission was accomplished by using a Cold War model for training, but that has now changed.

Cadet Field Training

Cadets enter the academy as civilians, but in two years they leave as small-unit leaders. In their second year, they attend cadet field training (CFT), which follows the crawl-walk-run method and consists of two 4-week details. These details are led by two separate chains of command.

Pre-2006 Training

The first detail—crawl-walk—focuses on individual training. Some of the training covered includes land navigation, basic and advanced rifle marksmanship, patrolling, combatives, and first aid.

The second detail—run—focuses on collective and leader training. Up until the summer of 2006, the second detail—known as Operation Highland Warrior—included training on offense, defense, raid, reconnaissance, and ambush. These were separate events that took on a Ranger School focus of operating in the woods and away from built-up areas. The training was useful, but not as relevant as it needed to be since the Global War on Terrorism began. The academy realized this and made a radical change.

2006 Training

The change was not a slow, multiple-year process; in about two months, the new plan was instituted and the planning and resourcing started. The new training for CFT still follows the crawl-walk-run model; however, the run detail now looks more like a sprint. All of the training during the first detail now directly supports the second detail. Camp Buckner was



A cadet speaks with a villager during training.

transformed into a forward operating base (FOB) with access control points at the gates. Cadets implement a complete weapons immersion program, and training is a continuous operation where all committees interact with each other. A committee consists of West Point staff and supporting Soldiers that plan and resource the different blocks of training and evaluate cadets as they execute their training. The new committees for Operation Highland Warrior are access control point defense, search and attack, convoy reaction, cordon and search, squad live-fire ambush, and quick-reaction-force operations. Arabic linguists were hired by the academy to provide not only a language barrier but also the ability to interact with the Muslim religion and culture.

Access Control Point Defense. Access control points are an opportunity for cadets to be exposed to the difficulties of defending a fixed site and making difficult tactical, ethical, and cultural decisions at a high-visibility location—the front gate of an American compound. Cadets are trained and evaluated in the actual setup and execution of an access control point by conducting vehicle and personnel searches. However, they are further challenged when the enemy tries to infiltrate the access control point using a variety of methods. Each of the situations requires the cadets, in all positions, to make tough decision on the spot.

Search and Attack. Search and attack, which is traditional patrolling training, teaches the future lieutenants the principles of combat patrol—critical to current operations in many theaters of operation. This mission centers on FOB security by conducting combat patrols in the surrounding hills looking for enemy mortars and caches.

Convoy Reaction. Soldiers conduct convoy operations on a daily basis in Operation Iraqi Freedom, and this led to the development of a convoy reaction mission. This mission focuses on executing a convoy, conducting react-to-contact drills, training cadets on route clearance and resupply missions, and reacting to improvised explosive devices (IEDs).

Cordon and Search. Cordon and search, the only company-size mission, consists of an extensive planning period; an air assault; the establishment of a patrol base; and then the cordon and search, which can escalate into an urban attack. This mission provides cadets the opportunity to conduct deliberate troop-leading procedures and mission rehearsals. When the cadets are entering the village, they must establish contact with the village leader. The cadet company commander, through an interpreter, discusses the operation with the sheik; tries to gain his trust and cooperation; and executes a safe, controlled search of the village.

The enemy also infiltrates the village, and the cadets must then search and clear the buildings with the enemy in them. After the battle, the cadet commander must return to the sheik and repair the relationship damaged by the enemy attack. This was an eye-opening experience for all cadets, from having to talk through an interpreter and deal with the obvious—and not so obvious—cultural differences, to conducting building and room clearance in a company operation.

Quick-Reaction-Force Operations. Quick-reaction forces interact with other missions and conduct their own separate missions, including mortar team searches, downed aircrew rescues, and medical evacuation support. They conduct troop-leading procedures based on priorities given by the regimental commander. This mission allows cadets to conduct planning



The company commander meets with the village sheik.

along multiple timelines and to coordinate with multiple units to support the mission.

Continuous Operations

One difference that stood out during the summer training of 2006 from previous summers was that operations were continuous. The regimental commander and staff managed all aspects of the cadet's summer. They organized training, events, and activities for downtime (what little there was). The staff conducted planning for all missions and training events and coordinated with eight company commanders daily during battle update briefs. The result was a summer training program that was run by cadets for cadets from the first day to the last.

Objectives

The objective is not to make the cadets experts in all of the tasks, but to place them in situations outside of their comfort zone and force them to make difficult decisions. The overall purpose of CFT is to train, instruct, test, and validate cadets on specific Basic Officer Leader Course I (BOLC I) tasks, military program required tasks, and the Chief of Staff of the Army's warrior tasks and drills—focused by the Global War on Terrorism within the contemporary operating environment.

The CFT, especially the second detail, exposes cadets to what they can expect to see when they graduate. They are pushed a little harder, hold more responsibility as cadet leaders, and learn techniques and procedures they take directly to the Army as platoon leaders.

Captain Morgan is the cadet summer training S-3 at the United States Military Academy. Previous assignments include commander of Charlie Company and Headquarters and Headquarters Company, 2d Battalion, 502d Infantry Regiment, 101st Airborne Division (Air Assault) during Operation Iraqi Freedom and Infantry Requirements Analyst at the Futures Center, Headquarters, United States Army Training and Doctrine Command, Fort Monroe, Virginia.



Dedication

The following members of the Engineer Regiment have been lost in the Global War on Terrorism since March 2003. We dedicate this issue to them.

Name	Unit	Location
Adams, Private Algernon	Charlie Company, 122d Engineer Battalion	Graniteville, South Carolina
CarolinaAdams III, Specialist Clarence	91st Engineer Battalion, 1st Cavalry Division	Fort Hood, Texas
Akins, Sergeant Kevin D.	Alpha Company, 391st Engineer Battalion	Asheville, North Carolina
Allen, First Lieutenant Louis E.	Headquarters & Headquarters Company, 42d Infantry Division	Troy, New York
Anderson, Corporal Andy D.	Bravo Company, 46th Engineer Battalion	Fort Rucker, Alabama
Andrews, Specialist Harley D.	54th Engineer Battalion, 130th Engineer Brigade	Bamberg, Germany
Arnold Sr., Sergeant Larry R.	Bravo Company, 150th Engineer Battalion	Quitman, Mississippi
August, Captain Matthew J.	1st Engineer Battalion, 1st Infantry Division	Fort Riley, Kansas
Ayro, Private First Class Lionel	73d Engineer Company, 25th Infantry Division	Fort Lewis, Washington
Barbret, Private First Class Mark A.	44th Engineer Battalion, 2d Infantry Division	Camp Howze, Korea
Barnett, First Lieutenant Christopher W.	Headquarters & Headquarters Company, 156th Armor Regiment	Shreveport, Louisiana
Bevington, Sergeant Allan R.	40th Engineer Battalion, 1st Armored Division	Baumholder, Germany
Biskie, Sergeant Benjamin W.	5th Engineer Battalion, 1st Engineer Brigade	Fort Leonard Wood, Missouri
Boatright, Sergeant Michael L.	20th Engineer Battalion, 1st Cavalry Division	Fort Hood, Texas
Boehmer, Sergeant Jeremiah J.	562d Engineer Company, 172d Stryker Brigade Combat Team	Fort Wainwright, Alaska
Bossert, Sergeant Andrew L.	44th Engineer Battalion, 2d Infantry Division	Camp Howze, Korea
Bowen, Private First Class Samuel R.	Headquarters Service Company, 216th Engineer Battalion	Hamilton, Ohio
Bradley, Staff Sergeant Kenneth R.	588th Engineer Battalion, 4th Infantry Division	Fort Hood, Texas
Brinlee, Specialist Kyle A.	Bravo Company, 120th Engineer Battalion	Pryor, Oklahoma
Brooks, Staff Sergeant Cory W.	Alpha Company, 153d Engineer Battalion	Wagner, South Dakota
Brown, Specialist Philip D.	Bravo Company, 141st Engineer Battalion	Jamestown, North Dakota
Bunch, Specialist Joshua I.	91st Engineer Battalion, 1st Cavalry Division	Fort Hood, Texas
Buzzard, Sergeant Jason J.	8th Infantry Regiment, 4th Infantry Division	Fort Hood, Texas
Byers, Specialist Casey	Bravo Company, 224th Engineer Battalion	Ottumwa, Iowa
Caradine Jr., Specialist Ervin	91st Engineer Battalion, 1st Cavalry Division	Fort Hood, Texas
Carroll, Specialist James D.	Alpha Company, 230th Engineer Battalion	McKenzie, Tennessee
Carter, Specialist Justin B.	15th Infantry Regiment, 3d Infantry Division	Fort Benning, Georgia
Castro, Specialist Jonathan	73d Engineer Company, 25th Infantry Division	Fort Lewis, Washington
Caughman, Private First Class Thomas D.	Charlie Company, 391st Engineer Battalion	Spartanburg, South Carolina
Chan, Specialist Doron	Detachment 2, 411th Engineer Brigade	New Windsor, New York

Name	Unit	Location
Chance III, Specialist James A.	Charlie Company, 890th Engineer Battalion	Columbia, Mississippi
Cheatham, Private First Class Jonathan M.	Headquarters & Headquarters Company, 489th Engineer Battalion	North Little Rock, Arkansas
Christensen, Staff Sergeant Thomas W.	652d Engineer Company, 397th Engineer Battalion	Ellsworth, Wisconsin
Clark, Sergeant Carlton A.	2d Brigade Special Troops Battalion, 101st Airborne Division	Fort Campbell, Kentucky
Clark, Corporal Ryan J.	40th Engineer Battalion, 1st Armored Division	Baumholder, Germany
Cleary, First Lieutenant Michael J.	15th Infantry Regiment, 3d Infantry Division	Fort Benning, Georgia
Coles, Sergeant Dominic R.	5th Engineer Battalion, 1st Engineer Brigade	Fort Leonard Wood, Missouri
Cooley, Sergeant First Class Sean M.	Bravo Company, 150th Engineer Battalion	Quitman, Mississippi
Corral, Sergeant Dennis A.	1st Engineer Battalion, 1st Infantry Division	Fort Riley, Kansas
Cox Jr., First Lieutenant Simon T.	66th Armor Regiment, 4th Infantry Division	Fort Hood, Texas
Creamean, Specialist Tyler L.	73d Engineer Company, 25th Infantry Division	Fort Lewis, Washington
Cuaresma, Sergeant Sirlou C.	62d Engineer Battalion, 13th Sustainment Command	Fort Hood, Texas
Damon, Captain Patrick D.	Headquarters & Headquarters Company, 240th Engineer Group	Augusta, Maine
Davis, Private Brandon L.	1st Engineer Battalion, 1st Infantry Division	Fort Riley, Kansas
Davis, Specialist Raphael S.	Bravo Company, 223d Engineer Battalion	Calhoun City, Mississippi
Davis, Sergeant Robert G.	864th Engineer Battalion, 555th Maneuver Enhancement Brigade	Fort Lewis, Washington
Diaz, First Lieutenant Carlos J.	69th Armor Regiment, 3d Infantry Division	Fort Benning, Georgia
Dill, Staff Sergeant Christopher W.	3d Detachment, 390th Infantry Regiment	Pennsauken, New Jersey
Dima, Sergeant Catalin D.	Headquarters Company, 411th Engineer Brigade	New Windsor, New York
Dostie, Specialist Thomas J.	Headquarters Service Company, 133d Engineer Battalion	Portland, Maine
Drexler, Private Jeremy L.	91st Engineer Battalion, 1st Cavalry Division	Fort Hood, Texas
Eckert Jr., Sergeant Gary A.	Charlie Company, 983d Engineer Battalion	Monclova, Ohio
Esposito, Captain Phillip T.	Headquarters & Headquarters Company, 42d Infantry Division	Troy, New York
Evans II, Specialist Michael S.	Bravo Company, 1088th Engineer Battalion	New Roads, Louisiana
Falaniko, Private Jonathan I.	70th Engineer Battalion, 1st Armored Division	Fort Riley, Kansas
Farrow, Staff Sergeant Jefferey J.	146th Quartermaster Company, 301st Area Support Group	Fort Totten, New York
Faulkner, Sergeant James D.	20th Engineer Battalion, 1st Cavalry Division	Fort Hood, Texas
Fettig, Specialist Jon P.	957th Engineer Company, 68th Troop Command	Bismarck, North Dakota
Flores, Staff Sergeant Omar D.	54th Engineer Battalion, 130th Engineer Brigade	Bamberg, Germany
Floyd, Sergeant Alkaila T.	54th Engineer Battalion, 130th Engineer Brigade	Bamberg, Germany
Forbes, Specialist Aaron M.	67th Armor Regiment, 4th Infantry Division	Fort Hood, Texas
Franklin, Private First Class Michael W.	44th Engineer Battalion, 2d Infantry Division	Camp Howze, Korea
Gabrielson, Sergeant First Class Dan H.	652d Engineer Company, 397th Engineer Battalion	Ellsworth, Wisconsin
Garceau, Specialist Seth K.	Alpha Company, 224th Engineer Battalion	Burlington, Iowa
Garcia, Corporal J. Adan	1st Brigade Special Troops Battalion, 10th Mountain Division	Fort Drum, New York
Gaunky, Private First Class Anthony A.	3d Brigade Special Troops Battalion, 101st Airborne Division	Fort Campbell, Kentucky

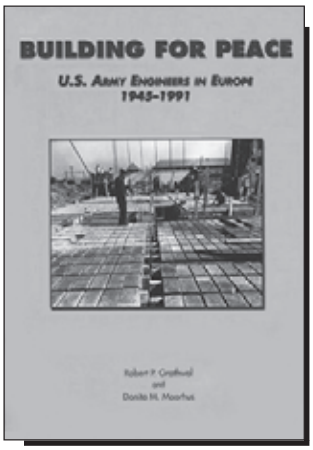
Name	Unit	Location
Gaylord, Private First Class Alva L.	Charlie Company, 110th Engineer Battalion	Lexington, Missouri
Gelineau, Specialist Christopher D.	Detachment 1, 133d Engineer Battalion	Gardiner, Maine
Gibbs, Private First Class Mathew V.	Headquarters & Headquarters Company, 648th Engineer Battalion	Statesboro, Georgia
Gienau, Second Lieutenant Richard B.	Alpha Company, 224th Engineer Battalion	Burlington, Iowa
Gilman, Sergeant Benjamin L.	41st Engineer Battalion, 10th Mountain Division	Fort Drum, New York
Goldberg, Specialist David J.	Detachment 1, Charlie Company, 52d Engineer Battalion	Fort Carson, Colorado
Granados, Corporal Cesar A.	8th Infantry Regiment, 4th Infantry Division	Fort Hood, Texas
Haight, Specialist Charles G.	14th Engineer Battalion, 555th Combat Engineer Group	Fort Lewis, Washington
Hall Jr., Specialist Robert E.	Charlie Company, 467th Engineer Battalion	Greenwood, Mississippi
Hattamer, Staff Sergeant Stephen C.	652d Engineer Company, 397th Engineer Battalion	Ellsworth, Wisconsin
Hawkins, Sergeant Gene A.	14th Engineer Battalion, 555th Combat Support Brigade (ME)	Fort Lewis, Washington
Hawkins II, Staff Sergeant Omer T.	44th Engineer Battalion, 2d Infantry Division	Camp Howze, Korea
Hendrickson, Staff Sergeant Kenneth W.	957th Engineer Company, 68th Troop Command	Bismarck, North Dakota
Hermanson, Specialist Michael L.	Alpha Company, 164th Engineer Battalion	Minot, North Dakota
Hill, Specialist Joshua L.	Alpha Company, 391st Engineer Battalion	Asheville, North Carolina
Hodge, Sergeant Jeremy M.	Bravo Company, 612th Engineer Battalion	Tiffin, Ohio
Hoffman, Sergeant First Class James T.	1st Engineer Battalion, 1st Infantry Division	Fort Riley, Kansas
Hollinsaid, Staff Sergeant Lincoln D.	11th Engineer Battalion, 3d Infantry Division	Fort Stewart, Georgia
Holmes, Specialist James J.	Detachment 2, Charlie Company, 141st Engineer Battalion	Hettinger, North Dakota
Hoyer, Private First Class Bert E.	652d Engineer Company, 397th Engineer Battalion	Ellsworth, Wisconsin
Hubbell, Specialist Cory A.	46th Engineer Battalion, 1st Combat Support Brigade	Fort Polk, Louisiana
Hufstedler, First Lieutenant Doyle M.	1st Engineer Battalion, 1st Infantry Division	Fort Riley, Kansas
Hurley, First Lieutenant Joshua C.	326th Engineer Battalion, 101st Airborne Division	Fort Campbell, Kentucky
Huxley Jr., Private First Class Gregory P.	317th Engineer Battalion, 3d Infantry Division	Fort Benning, Georgia
Jackson, Specialist Marlon P.	94th Engineer Battalion, 130th Engineer Brigade	Vilseck, Germany
Jackson II, Staff Sergeant William S.	16th Engineer Battalion, 1st Armored Division	Giessen, Germany
Jodon, Sergeant Andrew R.	3d Battalion, 3d Infantry Division	Fort Stewart, Georgia
Johnson, Private First Class Rayshawn S.	299th Engineer Battalion, 4th Infantry Division	Fort Hood, Texas
Jones, Sergeant First Class Michael D.	Alpha Company, 133d Engineer Battalion	Belfast, Maine
Jones, Specialist Robert L.	40th Engineer Battalion, 1st Armored Division	Baumholder, Germany
Jordan Jr., Sergeant Curt E.	14th Engineer Battalion, 555th Combat Engineer Group	Fort Lewis, Washington
Kading, Sergeant First Class Matthew R.	Charlie Company, 983d Engineer Battalion	Monclova, Ohio
Kane, Staff Sergeant Joseph M.	67th Armor Regiment, 4th Infantry Division	Fort Hood, Texas
Karr Jr., Specialist Michael G.	1st Engineer Battalion, 1st Infantry Division	Fort Riley, Kansas
Kendall, Specialist Dustin L.	68th Armor Regiment, 4th Infantry Division	Fort Carson, Colorado

Name	Unit	Location
Kimbrough, Lieutenant Colonel Paul Wayne	Team 28, 416th Engineer Command	Fort Benning, Georgia
Kiser, Sergeant Timothy C.	Forward Logistical Element Company, 340th Forward Support Battalion	Red Bluff, California
Koch, Specialist Matthew A.	70th Engineer Battalion, 1st Armored Division	Fort Riley, Kansas
Koenig, Staff Sergeant Lance J.	Bravo Company, 141st Engineer Battalion	Jamestown, North Dakota
Laird, Sergeant Dustin D.	913th Engineer Company, 46th Engineer Battalion	Union City, Tennessee
Landrus, Staff Sergeant Sean G.	1st Engineer Battalion, 1st Infantry Division	Fort Riley, Kansas
Lawton, Staff Sergeant Mark A.	Alpha Company, 244th Engineer Battalion	Boulder, Colorado
Linden, Specialist Troy C.	54th Engineer Battalion, 130th Engineer Brigade	Bamberg, Germany
Longstreth, Private First Class Duane E.	307th Engineer Battalion, 82d Airborne Division	Fort Bragg, North Carolina
Love, Private First Class Joseph I.	84th Engineer Battalion, 8th Sustainment Command (Theater)	Schofield Barracks, Hawaii
Luckey, Sergeant Bryan C.	562d Engineer Company, 172d Stryker Brigade Combat Team	Fort Wainwright, Alaska
Lufkin, Private First Class Caleb A.	5th Engineer Battalion, 1st Engineer Brigade	Fort Leonard Wood, Missouri
Lutters, Specialist Derrick J.	Alpha Company, 891st Engineer Battalion	Pittsburg, Kansas
Mahlenbrock, Specialist David P.	65th Engineer Battalion, 25th Infantry Division	Schofield Barracks, Hawaii
Manzano, Private First Class Pablo	54th Engineer Battalion, 130th Engineer Brigade	Bamberg, Germany
Martin, Private First Class Ryan A.	Headquarters Service Company, 216th Engineer Battalion	Hamilton, Ohio
Martinez, Staff Sergeant Misael	16th Engineer Battalion, 1st Armored Division	Giessen, Germany
Martinez-Salazar, Specialist Roberto L.	14th Engineer Battalion, 555th Maneuver Enhancement Brigade	Fort Lewis, Washington
Mason, Specialist Nicholas C.	Charlie Company, 276th Engineer Battalion	West Point, Virginia
McCaffrey, Sr., Specialist Patrick R.	Alpha Company, 579th Engineer Battalion	Petaluma, California
McClain, Sergeant Charles J.	3d Brigade Special Troops Battalion, 10th Mountain Division	Fort Drum, New York
McMullen, Staff Sergeant Michael J.	243d Engineer Company, 121st Engineer Battalion	Reisterstown, Maryland
McNail, Specialist Robert A.	Bravo Company, 150th Engineer Company	Quitman, Mississippi
Menyweather, Staff Sergeant Eddie E.	588th Engineer Battalion, 4th Infantry Division	Fort Hood, Texas
Meyer, Private First Class Jason M.	11th Engineer Battalion, 3d Infantry Division	Fort Stewart, Georgia
Micks, Specialist Joseph P.	54th Engineer Battalion, 130th Engineer Brigade	Bamberg, Germany
Miller, Sergeant John W.	Alpha Company, 224th Engineer Battalion	Burlington, Iowa
Millsap, First Sergeant Timothy J.	70th Engineer Battalion, 1st Armored Division	Fort Riley, Kansas
Mitchell, Sergeant Keman L.	4th Engineer Battalion, 4th Infantry Division	Fort Carson, Colorado
Mitchell, Specialist Sean R.	1st Engineer Battalion, 1st Infantry Division	Fort Riley, Kansas
Moothart, Sergeant Travis A.	1st Engineer Battalion, 1st Infantry Division	Fort Riley, Kansas
Moreno, Specialist Jaime	20th Engineer Battalion, 1st Cavalry Division	Fort Hood, Texas
Morgan, Specialist Dennis B.	Detachment 1, 153d Engineer Battalion	Winner, South Dakota
Morningstar, Staff Sergeant Christopher R.	562d Engineer Company, 172d Stryker Brigade Combat Team	Fort Wainwright, Alaska
Muldoon, Sergeant James P.	68th Armor Regiment, 4th Infantry Division	Fort Carson, Colorado

Name	Unit	Location
Murray, Sergeant David J.	Bravo Company, 1088th Engineer Battalion	New Roads, Louisiana
Nakis, Specialist Nathan W.	Bravo Company, 52d Engineer Battalion	Albany, Oregon
Naputi, Specialist Richard Junior D.	15th Infantry Regiment, 3d Infantry Division	Fort Benning, Georgia
Neusche, Specialist Joshua M.	203d Engineer Battalion, 35th Engineer Brigade	Joplin, Missouri
Nieves, Specialist Isaac M.	82d Engineer Battalion, 1st Infantry Division	Bamberg, Germany
Norquist, Specialist Joseph C.	588th Engineer Battalion, 4th Infantry Division	Fort Hood, Texas
Nurre, Sergeant Joseph C.	Bravo Company, 463d Engineer Battalion	Weirton, West Virginia
Ojeda, Specialist Ramon C.	84th Engineer Battalion, 25th Infantry Division	Schofield Barracks, Hawaii
Ottolini, Staff Sergeant Michael C.	Alpha Company, 579th Engineer Battalion	Petaluma, California
Palacios, Specialist Gabriel T.	588th Engineer Battalion, 4th Infantry Division	Fort Hood, Texas
Paliwoda, Captain Eric T.	4th Engineer Battalion, 4th Infantry Division	Fort Carson, Colorado
Pankey, Jr., Sergeant Larry W.	Charlie Company, 467th Engineer Battalion	Greenwood, Mississippi
Parker, Private First Class James D.	588th Engineer Battalion, 4th Infantry Division	Fort Hood, Texas
Parker, Private First Class Kristian E.	Charlie Company, 205th Engineer Battalion	Slidell, Louisiana
Parrish, Staff Sergeant Lawrence L.	Headquarters & Headquarters Company, 110th Engineer Battalion	Kansas City, Missouri
Penamedina, Staff Sergeant Abraham D.	20th Engineer Battalion, 1st Cavalry Division	Fort Hood, Texas
Pernell, Sergeant Carlos E.	Bravo Company, 46th Engineer Battalion	Fort Rucker, Alabama
Pinkston, Sergeant Foster	Headquarters Service Company, 878th Engineer Battalion	Augusta, Georgia
Pintor, Captain Dennis L.	20th Engineer Battalion, 1st Cavalry Division	Fort Hood, Texas
Poulin Sr., Sergeant Lynn R.	Alpha Company, 133d Engineer Battalion	Belfast, Maine
Preusse, Corporal Randall D.	Alpha Company, 386th Engineer Battalion	Austin, Texas
Quinton, Specialist Bryan L.	5th Engineer Battalion, 1st Engineer Brigade	Fort Leonard Wood, Missouri
Rafferty, First Sergeant Christopher C.	37th Engineer Battalion, 20th Engineer Brigade	Fort Bragg, North Carolina
Ramirez, Sergeant Angel De Jesus L.	16th Engineer Battalion, 1st Armored Division	Giessen, Germany
Ramirez, Sergeant Reyes	40th Engineer Battalion, 1st Armored Division	Baumholder, Germany
Ramsey, Specialist Christopher J.	Bravo Company, 1088th Engineer Battalion	New Roads, Louisiana
Raney, Private First Class Cleston C.	1st Engineer Battalion, 1st Infantry Division	Fort Riley, Kansas
Ray, Staff Sergeant Joseph R.	Alpha Company, 391st Engineer Battalion	Asheville, North Carolina
Reed, Staff Sergeant Johnathan R.	Bravo Company, 1088th Engineer Battalion	New Roads, Louisiana
Reinke, Staff Sergeant Gavin B.	5th Engineer Battalion, 1st Engineer Brigade	Fort Leonard Wood, Missouri
Reyes, Sergeant Luis R.	947th Engineer Company, 89th Troop Command	Pueblo, Colorado
Reyna, Specialist Seferino J.	70th Engineer Battalion, 1st Armored Division	Fort Riley, Kansas
Rodriguez, Staff Sergeant Joseph E.	8th Engineer Battalion, 1st Cavalry Division	Fort Hood, Texas
Rooney, Sergeant First Class Robert E.	379th Engineer Company, 51st Troop Command	Bourne, New Hampshire
Ruhren, Specialist David A.	Charlie Company, 276th Engineer Battalion	West Point, Virginia

Name	Unit	Location
Rusin, Private First Class Aaron J.	44th Engineer Battalion, 2d Infantry Division	Camp Howze, Korea
Ruth, Sergeant Monta S.	15th Infantry Regiment, 3d Infantry Division	Fort Benning, Georgia
Rymer II, Specialist Lyle W.	Detachment 1, 239th Engineer Battalion	Fort Chaffee, Arkansas
Sanchez, Sergeant Ian T.	32d Infantry Regiment, 10th Mountain Division	Fort Drum, New York
Seale, Staff Sergeant Stephen A.	2d Brigade Special Troops Battalion, 101st Airborne Division	Fort Campbell, Kentucky
Seesan, First Lieutenant Aaron N.	73d Engineer Company, 25th Infantry Divisin	Fort Lewis, Washington
Segura Jr., Sergeant Leroy	362d Engineer Company, 54th Engineer Battalion	Fort Benning, Georgia
Smette, Sergeant Keith L.	957th Engineer Company, 68th Troop Command	Bismarck, North Dakota
Smith, Sergeant First Class Paul R.	11th Engineer Battalion, 3d Infantry Division	Fort Stewart, Georgia
Soelzer, Captain Christopher F.	5th Engineer Battalion, 1st Engineer Brigade	Fort Leonard Wood, Missouri
Splinter, Major Christopher J.	5th Engineer Battalion, 1st Engineer Brigade	Fort Leonard Wood, Missouri
Strange, Private First Class William R.	91st Engineer Battalion, 1st Cavalry Division	Fort Hood Texas
Taylor III, Sergeant Norman R.	68th Armor Regiment, 4th Infantry Division	Fort Carson, Colorado
Tobler, Specialist Brandon S.	Detachment 1, 671st Engineer Company	Portland, Oregon
Trevithick, Specialist Richard K.	9th Engineer Battalion, 1st Cavalry Division	Schweinfurt, Germany
Tyrrell, Private Scott M.	299th Engineer Battalion, 4th Infantry Division	Fort Hood, Texas
Tyson, Second Lieutenant Andre D.	Alpha Company, 579th Engineer Battalion	Petaluma, California
Unruh, Specialist Robert Oliver	44th Engineer Battalion, 2d Infantry Division	Camp Howze, Korea
Vargas-Medina, Staff Sergeant Oscar D.	84th Engineer Battalion, 25 Infantry Division	Schofield Barracks, Hawaii
Villanueva, Sergeant First Class Joselito O.	9th Engineer Battalion, 1st Cavalry Division	Schweinfurt, Germany
Walker, First Lieutenant Laura M.	864th Engineer Battalion, 555th Maneuver Enhancement Brigade	Fort Lewis, Washington
Ward, Private First Class Andrew M.	44th Engineer Battalion, 2d Infantry Division	Camp Howze, Korea
Warren, Sergeant First Class Charles H.	Charlie Company, 648th Engineer Battalion	Statesboro, Georgia
Washington, Sergeant Bennie J.	44th Engineer Battalion, 2d Infantry Division	Camp Howze, Korea
Webb, Sergeant Charles J.	82d Engineer Battalion, 1st Infantry Division	Bamberg, Germany
Wegar, Specialist Michael S.	20th Engineer Battalion, 1st Cavalry Division	Fort Hood, Texas
Wentz, Specialist Cody L.	Alpha Company, 141st Engineer Battalion	Edgeley, North Dakota
White III, Private First Class Robert C.	864th Engineer Battalion, 555th Maneuver Enhancement Brigade	Fort Lewis, Washington
Widner, Specialist Vernon R.	3d Brigade Special Troops Battalion, 101st Airborne Division	Fort Campbell, Kentucky
Wilkins III, First Lieutenant Charles L.	Headquarters Service Company, 216th Engineer Battalion	Hamilton, Ohio
Williams IV, Sergeant Arthur C.	44th Engineer Battalion, 2d Infantry Division	Camp Howze, Korea
Wolf, Specialist James R.	Headquarters & Headquarters Company, 52d Engineer Battalion	Fort Carson, Colorado
Wood, Sergeant Brian M.	9th Engineer Battalion, 1st Cavalry Division	Schweinfurt, Germany
Wright, Specialist Brian A.	135th Engineer Company, 876th Engineer Battalion	Lawrenceville, Illinois
Zamora, Corporal Jose	2d Brigade Special Troops Battalion, 101st Airborne Division	Fort Campbell, Kentucky

Book Reviews



Building for Peace: U.S. Army Engineers in Europe, 1945-1991, by Robert P. Grathwol, Ph.D., and Donita M. Moorhus, U.S. Army Center for Military History, CMH Pub 45-1-1, Government Printing Office: Washington, D.C., 2005, 393 pages, GPO S/N: 008-029-00410-1, $62.00 (paper).

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It is difficult to make a technical history both readable and accurate. *Building for Peace*, by Robert Grathwol and Donita Moorhus, manages to accomplish both. This well-researched first volume of the Center for Military History's U.S. Army in the Cold War series tells the story of U.S. Army engineers in Europe from 1945 - 1991 in exquisite detail, making it recommended professional reading for all in the Army engineering community.

Organized into three parts, the narrative flows logically from efforts in postwar reconstruction (1945 - 1949) to the mutual defense of western Europe (1950 - 1973), and finally to the era of the Europe Division, U.S. Army Corps of Engineers®, and the end of the Cold War (1974 - 1991). The authors take great care to not only describe the mission and organization of the various Army engineer activities in Europe but also to establish the context that shaped the decisions taken by engineer leaders. This book is full of photographs, tables, and maps that help the reader visualize the events that transpired and the challenges facing U.S. Army engineers as they support the Army and Air Force in Europe.

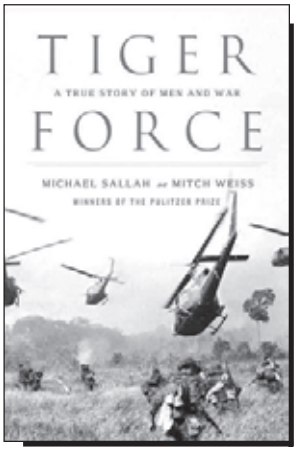
Part one of the narrative describes the fluid situation facing Army engineers in the early days of the occupation of Germany, and does a great job of describing the engineering organization, priorities, and challenges overcome. The authors capture the difficulties of supporting the drawdown and redeployment of the Army, while simultaneously developing ports and lines of communication for constabulary forces and helping reestablish critical civil infrastructure. They also capture the uncertainty of the circumstances in the immediate postwar era, culminating in the blockade of Berlin by the Soviet Union and the Berlin Airlift.

The second part of the narrative covers a much more extensive period of time and follows the evolution of engineering support in Europe through the challenges of crash construction programs for the buildup of Army forces in the early 1950s, of doing business with the newly sovereign West German Republic, and several evolutions of engineering organization built in response to the requirements of the day. The rationale for the establishment and employment of the Joint Construction Agency; the U.S. Army Construction Agency, Germany; and the Engineer Command are discussed in detail, as are the challenges they faced.

The largest part of this history is devoted to recounting the establishment, service, and ultimate inactivation of one organization: the Europe Division of the U.S. Army Corps of Engineers from 1974 - 1991. It is clearly well researched; however, this part of the narrative seems to drag in the telling. The authors seem to put far more emphasis on discussing the details of programs and projects in this section. As a result, the narrative jumps around a bit rather than flowing chronologically, making it hard to follow at times. Even so, the authors convey the complexity and difficulty of the mission as well as the flexibility of Army engineers in meeting it.

This history is highly recommended to all in the Army engineering community. The flexibility, innovation, and professionalism recounted are worthy of study and reflection. No doubt today's Army engineers can draw lessons from their predecessors in Europe as they face today's engineering challenges in support of our Army and the nation.

Reviewed by Lieutenant Colonel Stephen V. Tennant, U.S. Army (Retired), Assistant Professor, Command and General Staff College, Fort Leavenworth, Kansas.



Tiger Force: A True Story of Men and War, by Michael Sallah and Mitch Weiss, Little, Brown & Company: New York, May 2006, 416 pages, ISBN: 0316159972 (nonfiction) ISBN-13: 9780316159975 (general), $25.95 (hardcover)

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During the Vietnam War, "Tiger Force" was the code name of an elite platoon of the 1st Battalion, 327th Infantry Regiment, 101st Airborne Division. Tiger Force was intended to "outguerrilla the guerrillas," scrapping the techniques of conventional warfare to take the fight to the enemy in the jungle. Along the way, it also scrapped the rules of war.

The battalion executive officer organized the 45-man volunteer force in 1966, and it became one of the war's most highly decorated units, paying for its reputation with heavy casualties. In 1967, the Tiger Force platoon went on a seven-month rampage through South Vietnam's central highlands that left more than 325 civilians dead—mostly children, women, and old men.

Unlike other elite units such as the Special Forces, Tiger Force was made up of a mixed lot, elite only in the fighting sense. Many had served jail time, and many Tiger Force veterans died young from cancer, cirrhosis of the liver, or suicide. Commanders set the tone, and Tiger Force leaders were close to psychopathic in their hatred for Vietnamese people, no matter what side they were supposed to be on. *It is a free-fire zone; if it moves, it is VC. Kill it!* And that they did. Most of the murdered Vietnamese appeared to be guilty only of being peasant farmers who didn't want to leave their land.

The real atrocities began with the routine and relentless use of free-fire zones: 105- and 155-millimeter howitzer random harassment and interdiction fire; helicopter gunships; Puff, the Magic Dragon; fighter and attack jets and their napalm; the B-52 carpet bombing, etc., etc., …

From 1971 to 1975, the Army mounted an investigation that documented the crimes. Our civilian leadership decided that "nothing beneficial" could result from prosecuting the platoon members or their leaders.

The atrocities in this book are as bad as My Lai. Basically, My Lai was a one-day incident where an Americal Division line outfit went berserk and killed somewhere around 500 people; these Tiger Force atrocities occurred over a period of months. Their commanders clearly knew what they were doing and encouraged it. How far up the ladder it went, I don't know, but I wish I did.

Reviewed by Mr. Jeffrey L. Rosemann, an instructional systems specialist with the Officers Education Branch, Department of Training Development, United States Army Engineer School. A retired infantry Soldier, he also served as the 2d Infantry Division historian during the beginning of the 50th Anniversary of the Korean War.

Military Review Seeks Essays for 2007 Writing Competition



For the 2007 General William E. DePuy Special Topics Writing Competition, *Military Review* seeks original essays on "Consolidating Victory: Stability and Reconstruction Operations." Winning papers will be carefully researched, analytically oriented critiques, proposals, or relevant case histories that show evidence of imaginative, even unconventional, thinking. Submissions generally should not exceed 5,000 words.

Winners will be announced in May 2007. First prize is featured publication in a future edition of *Military Review,* a $1,000 honorarium, and a certificate. Second prize offers publication in *Military Review,* a $750 honorarium, and a certificate. Third prize offers publication in *Military Review,* a $500 honorarium, and a certificate. Fourth prize offers publication in *Military Review,* a $250 honorarium, and a certificate. Honorable mention offers publication in *Military Review,* a $100 honorarium, and a certificate.

Essays should be submitted with an enrollment form via e-mail or in hard copy with a CD not later than 1 April 2007. Send e-mail submissions to <*milrevweb@leavenworth.army.mil*> (Subject: Competition). Mail hard copies with a CD to *Military Review*, ATTN: Competition, 294 Grant Avenue, Fort Leavenworth, Kansas 66027-1254. For more details—to include a copy of the enrollment form, criteria for judging, and a list of potential topics—visit *Military Review* online at <*http://usacac.army.mil/CAC/milreview/index.asp*>.

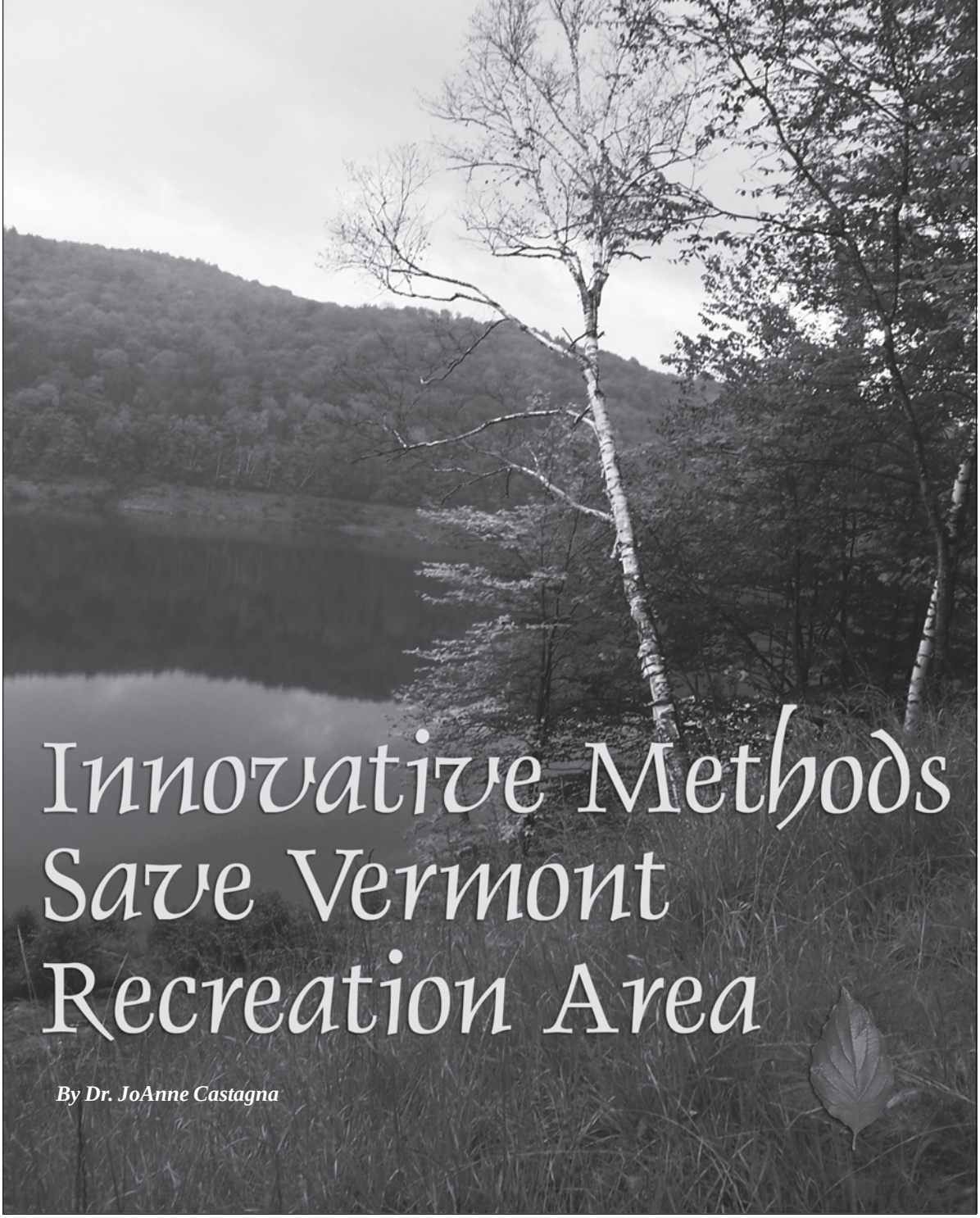


Photo by Jenifer Thalhauser, Planning Division, United States Army Corps of Engineers, New York District

Innovative Methods Save Vermont Recreation Area

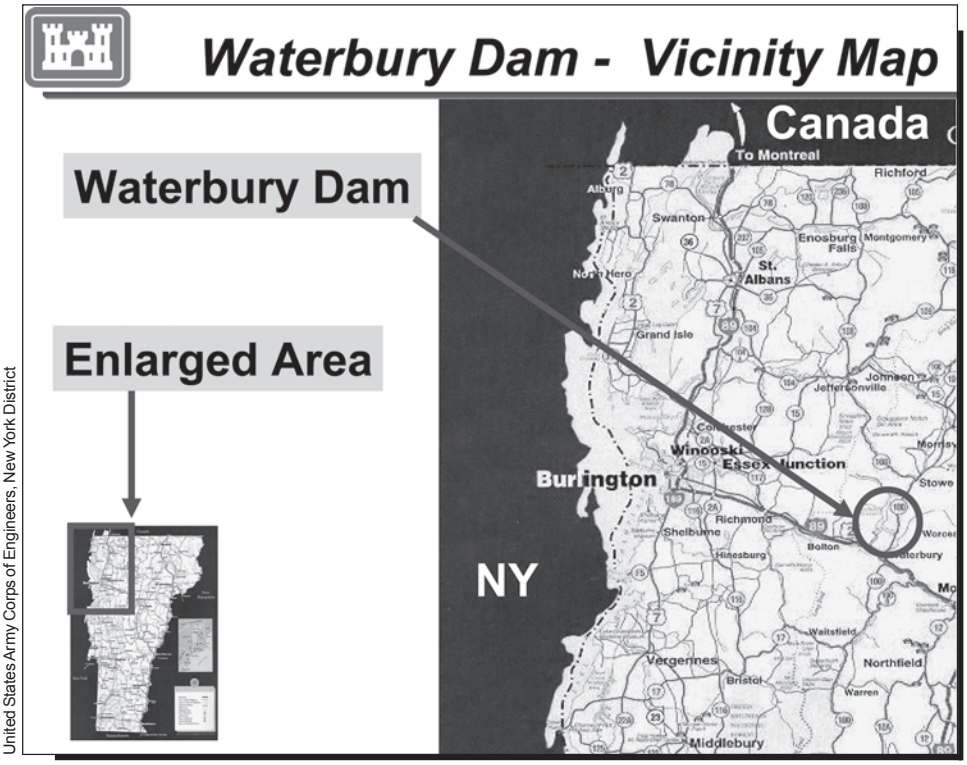
By Dr. JoAnne Castagna

Each year, primarily during the summer months, hundreds of visitors, nature enthusiasts, recreation seekers, and local residents travel to Vermont's 850-acre Waterbury Reservoir campground to enjoy the outdoor activities available along the 19 miles of pristine shoreline. The area is perfect for camping, fishing, hiking, and water sports.

In 1935, the United States Army Corps of Engineers® designed and managed the construction of the dam in response to a flooding disaster and since then has periodically modified it. In recent years, the dam has experienced seepage problems, and the sloped banks along the shoreline became unstable due to erosion.

In 2000, the State of Vermont lowered the reservoir due to safety concerns at the nearby Waterbury Dam and lowered it again in 2002 when the Corps began construction work on the dam. The reservoir was lowered to 520 feet, but the water is currently at 550 feet and will return to summer pool level (590 feet) when the work is completed. Also, the reservoir's water level was lowered each winter when the campground closed.

Lowering the reservoir takes pressure off the dam, reduces seepage, and allows safer conditions for construction work. However, this drawdown and the wave action from recreational boats against the exposed shoreline were contributing factors



Site map for the Waterbury Dam

to the shore's erosion and resulted in its instability. In response to this safety hazard, the Corps's New York District, with the assistance of other Corps districts, used traditional and innovative engineering techniques to make the banks of the reservoir safer.

The sloped banks of the reservoir were vegetated, but when the reservoir was lowered, the lower portions without vegetation were exposed. This caused the soil on the upper part of the bank to erode and uproot vegetation, especially during rainfall. When the vegetation was lost, the upper portions of the bank were also exposed and subject to erosion.

With the ground exposed, groundwater percolated out of the soil—contributing to the slope's erosion—and added additional soil to the reservoir. Allowing this runoff to continue would cause the campground to lose large portions of land and would adversely affect the water quality of the reservoir and downstream river. In addition, the flow of sediment into the reservoir creates turbid, muddy water; reduces the water's oxygen level; and increases the water's temperature, which can harm water habitats.



Photo by Construction Division, United States Army Corps of Engineers, New York District

The slope was regraded prior to placing riprap for stabilization.

The Corps, in collaboration with the State of Vermont, constructed a shoreline stabilization project for 1,100 feet of reservoir shoreline this summer, using both traditional and bioengineering methods.

Traditional techniques, using stone or riprap, stabilized the bottom of the slope. The weight of the stone prevents wave action from moving or removing the stone and prevents scoring or erosion. This part of the slope must remain stable for the upper areas (stabilized using bioengineering techniques) to remain in place and function properly.

Bioengineering techniques use dormant plant cuttings from woody plants that root easily to alleviate soil erosion. Planted in specific arrangements depending on the

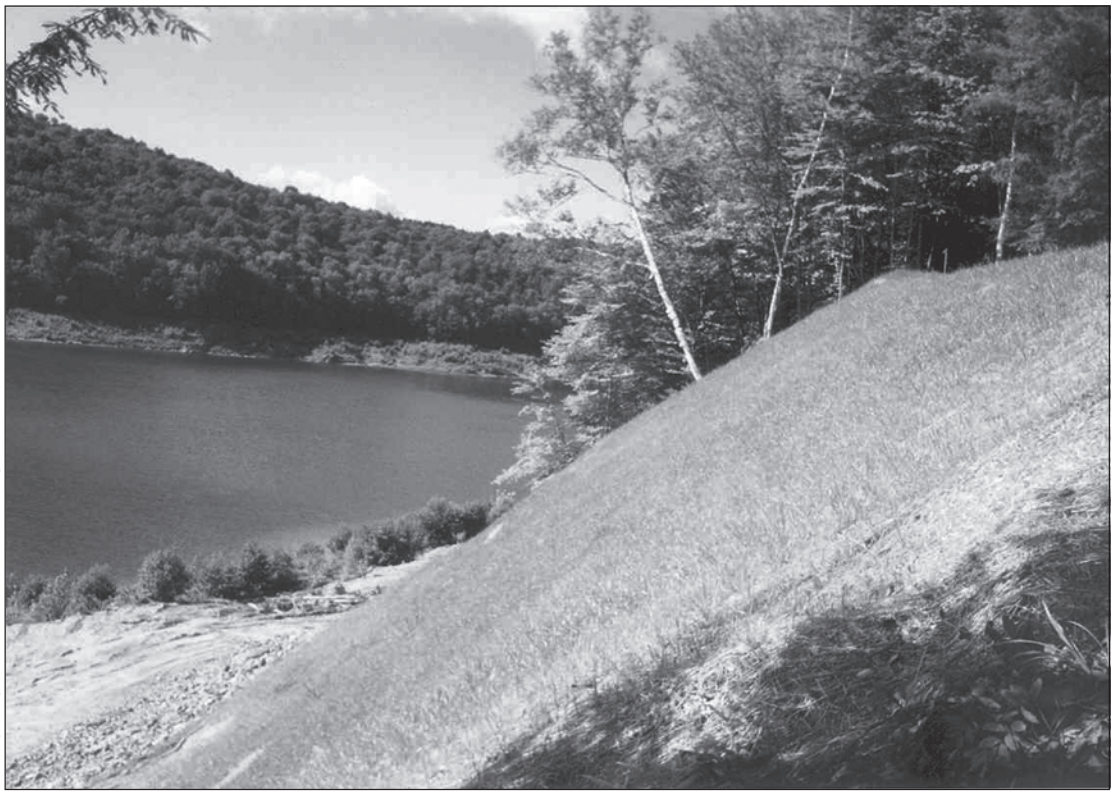


Photo by Marty Goff, United States Corps of Engineers, New York District

Riprap was placed at the bottom of the slope for stabilization, and the regraded slope was covered with grass seeding prior to fall plantings.

technique, the root systems hold the soil together and prevent sediment loss. Only native plants were used for this project. Willow, dogwood, and alder species were planted at the bottom of the slope to provide quick rooting. A mix of low-growing to medium-size shrubs were planted on the rest of the slope.

The State of Vermont is a strong proponent of the bio-engineering technique and encouraged its use. The Corps has used bioengineering in the past, but this was the first time native plants were used. A departure from the more traditional approach—which typically involves steel sheet pile and backfilling—resulted in a more natural and sustainable slope.

Combining traditional and bioengineering techniques is beneficial because a stable slope was achieved without diminishing the area's natural appearance, and it won't have the "engineered" look of many slope stabilization projects. The environment also benefits from combining the two techniques. Planting vegetation along the shoreline provides nesting and foraging habitats for native bird species and maintains the look and feel of the region for campground visitors.

With the stabilization at the bottom of the slopes completed, grass seed was sown at the top of the slopes for immediate slope stabililization. In the fall, a mix of live cuttings and containers of woody vegetation, such as shrubs and trees, were planted on the slopes for long-term stabilization. Planting in the fall is more conducive to plant survival than planting during the summer.

The project manager provided the following suggestions for other engineers performing similar shore stabilization projects:

- Coordinate constantly with various state agencies to make sure everyone agrees with the schedule and project goals to avoid unnecessary delays.
- Consider the "green" approach when trying to stabilize slopes. A bioengineered slope should be as stable as a typically constructed "hard" design.
- Be open to new and innovative ideas, even if they deviate from the traditional.

Although the Waterbury Reservoir campground is closed for the winter, when it reopens in the spring, the restored portions of the shoreline will be open to the public.

Dr. Castagna is a technical writer/editor for the United States Army Corps of Engineers, New York District. She can be reached at <joanne.castagna@usace.army.mil>.



Restoring and Enhancing Historic Property

By Dr. JoAnne Castagna

The United States Army Corps of Engineers® Finderne Farms Wetlands Mitigation Project is part of the Green Brook Flood Control Project, designed to reduce flood damage in New Jersey's Raritan River Basin in north-central New Jersey (Middlesex, Somerset, and Union Counties). The mitigation project, located on 130 acres of land along the Raritan River in Bridgewater Township, enhances and restores the land around the historic Van Veghten House in Somerset County, by creating wildlife habitats and a public park. The state is proud of its history, and this was taken into account when the Corps's New York District collaborated with them in 2000 on this project.

According to the biologist and project coordinator, the wetland mitigation work is enhancing existing wetlands, forested land, and grassland habitats on the site and creating more than 20 acres of man-made wetlands to sustain wildlife and create an educational public park. The land was used for farming crops and livestock from the late 1600s to just a few years ago when Somerset County purchased it for open space preservation and park development. Years of farming had caused erosion problems on the land.

The Van Veghten family owned a huge tract of land that included all of the property now under construction at the mitigation site. The 18th Century red brick Dutch farmhouse, the historic Van Veghten House, still stands on the bluff above the floodplain with a view of the Raritan River. The house, presently occupied by the Somerset County Historical Society, has a rich history that includes sheltering General George Washington's Quartermaster General, General Nathaniel Greene, during the Revolutionary War, while his Soldiers camped nearby. A volunteer from the Somerset County Historical Society explained that General George Washington danced the night away there also.





A multisection precast concrete bridge is lowered by crane across a stream.

The Corps, in cooperation with the County Parks Commission, began construction in January 2006. The land was graded around the clock for approximately 2 months to prepare it for spring seeding. Grading sets the stage by achieving a soil elevation that supports the water needs required for wetland plant growth. The soil in the wetland creation areas was then tilled using a 30-inch plow-bedding harrow, to create mounds and depressions, mimicking the uneven surface of a natural wetland. The soil was then fertilized and limed, and this past spring nearly 100,000 trees and shrubs were planted. Habitat mitigation areas were also seeded with a mixture of native grasses and wild flowers.

Several wetland habitats, forested land, and grassland habitats were enhanced or created to provide nesting and foraging habitats for a variety of birds, amphibians, reptiles, aquatic invertebrates, butterflies, and mammals.

The public will be able to view these habitats by walking along a 2-mile nature trail created by the Corps. The trail meanders throughout the site and has signs to educate the public about the habitats and wildlife and provide facts about the nearby Van Veghten House. Also on the site are two playing fields with parking lots and access roads, making the site a part of the Raritan River Greenway. Although most of the work was completed in the summer of 2006, the 12 acres of recreational area, such as the trail and playing fields, won't be open to the public until the spring of 2007 so the grass and plants have a chance to grow.



The banks of the "Finderne Brook"—that flows into the Raritan River—have been contoured to prepare for planting.

The project coordinator provided the following suggestions for others planning a mitigation project:

- Contact plant nurseries early. Find out what species are available and if the quantity and plant size needed for the project are available.
- Plan ahead when using native plants. If the project calls for growing native species using seeds and cuttings collected

What the Project Entails

Wetland, Forested Land, and Grassland Habitat Enhancement and Creation

Forested Wetland. This is wetland that has deciduous woody vegetation with a tree canopy in excess of 20 feet in height. Approximately 14 acres of existing forested wetland were enhanced by planting trees (oak, ash, and sycamore) and shrubs (summersweet, silky dogwood, and high bush blueberry). Approximately 21 acres of pastureland were turned into forested wetland. The land was graded, then the area was seeded with a mix of wetland plants and floodplain grasses and planted with bare-root and container-plant material. Trees (oaks, ash, and sycamore) and shrubs (summersweet, silky dogwood, and high bush blueberry) were planted. In some areas the land was graded to create vernal pools, ephemeral spring ponding areas used by salamanders, invertebrates, and frogs for breeding.

Scrub-Shrub Wetland. This is a wetland that has primarily woody vegetation that is less than 20 feet tall. Approximately 8 acres were enhanced by seeding and planting the wetland to make it more desirable for various species of wildlife.

Emergent Wetland (Wet Marsh). Approximately 5 acres were enhanced by seeding and planting the wetland to make it more desirable for various species of wildlife.

Riparian Forest (Corridor Forest). This is a forest that borders a river, in this case the Raritan River. Approximately 25 acres of Riparian Forest were restored by seeding and planting. In addition, the Riparian Buffer (the strip of woody vegetation along the river's banks) was increased to 100 to 300 feet to create a habitat for wildlife that thrives in this type of environment, including species of birds, mammals, reptiles, and amphibians. In addition, the increased buffer sustains shade cover for fish habitats within the river. In this buffer area, various shrubs (elderberry, spicebush, and black haw viburnum) and trees (hickory and silver maple) were planted. The trees were selected because of their shaggy bark at maturity that could provide a suitable roosting habitat for bats during the summertime.

Stream Restoration. An unnamed 800-foot stream, referred to as the "Finderne Brook," runs through portions of the site. The stream was eroding and the Corps created a more natural water flow and restored its habitat. To improve the water flow, the area bordering the stream (the floodplain) was widened to prevent the stream's banks from eroding and an undersized pipe culvert, that was constricting flow, was replaced with a natural bottom arched culvert bridge. To improve the stream habitat and stabilize the banks, the stream was graded, seeded with floodplain grass, planted with wetland plant cuttings, and covered with a degradable coir matting (made of coconut fiber) to stabilize riverbank soils until the vegetation takes hold. To prevent soil erosion, supplemental riverbed stone was placed in the stream. Also, the stones create a series of pools and riffles for fish and invertebrate habitats such as crayfish and pickerel frogs that have already been sighted in the stream.

Grassland by the Van Veghten House. Thirty-nine acres of enhanced grassland have transformed the property around the Van Veghten House that overlooks the Raritan River. The grassland provides visitors an unobstructed view of the vista across the floodplain toward the Raritan River. The floodplain was seeded with warm season grasses (Indian grass and bluestem) and wildflowers (ox-eye daisy, asters, and coreopsis) that will support a population of pollinating birds and insects, and the meadow will be a foraging area for the resident fox and red-tailed hawks, as well as other birds and small mammals.



Thousands of "willow stakes" are planted in burlap weed barriers along the side of the stream.

directly from the area, it's recommended that propagation activities be initiated at least two years in advance of project construction.

- Consider practical storage of plant material on-site. Plan storage for large quantities of plant material, especially bare-root trees and shrubs, on-site. Having a refrigerator truck, which mimics a greenhouse by maintaining temperature and humidity levels similar to a nursery, on-site allows storage of large quantities of plants and extends the time cuttings can be stored. Without the truck, storing and planting bare-root material is limited to 1 to 2 days for each delivery of plants. The truck also preserves live-stake material in its dormant state for a period extending beyond nursery availability.
- Have project designers make multiple site visits. Because conditions change, project designers should be involved team members during construction and visit the site several times during the design process. Incorporating any necessary design changes prior to construction helps to minimize delays and costly modifications.
- Collaborate with property stakeholders. The Corps reached an agreement with the New Jersey Historic Preservation Office to plant grassland rather than trees near the Van Veghten House to maintain the historic view of the Raritan River. The Corps also reached an agreement with a local utility company to plant unobstructive vegetation near overhead power lines to provide continued access to those areas.

The success of this mitigation project has encouraged the project coordinator to seek out other sites in the area to perform similar work. Wildlife already has been observed on the site, including red tail hawks, great blue herons, painted turtles, northern water snakes, freshwater clams, deer, and a resident red fox.

For more information about the Van Veghten House, contact the Somerset County Historical Society at (908) 218-1281.

Dr. Castagna is a technical writer/editor for the United States Army Corps of Engineers, New York District. She can be reached at <joanne.castagna@usace.army.mil>.

FORCE PROVIDER DEMONSTRATION

By Mr. Michael T. Wolford

Who do you call when you have a question about the design, construction, or management of a base camp? Currently, there is no single proponent you can contact to assist with base camp issues. To fill this gap, the United States Army Engineer School has submitted a proposal to the United States Army Training and Doctrine Command (TRADOC), seeking the proponency for base camps. Assigning the proponency to the Engineer School will not mean that the engineers have all the answers to base camp issues, but it will provide one point of contact to coordinate all issues with appropriate agencies. In an effort to disseminate information, the Engineer School invited Quartermaster Corps personnel to Fort Leonard Wood in September to demonstrate a new base camp system so future base camp planners could see facilities that are available to deployed forces.



A compacted ELSS arrives on a pallet.

The Quartermaster Corps is one of the many organizations that the Engineer School coordinates with for base camp planning and design, because it owns the bed-down system the Army now uses called *Force Provider*. The original Force Provider was developed after the first Gulf War. This system is a packaged base camp that is containerized and can be deployed to support forces in any area of operation by providing billeting; a dining facility; and morale, welfare, and recreation (MWR) facilities. The Force Provider package—which also includes climate control, generators, kitchen facilities, and lighting—takes several aircraft to deploy. But now there is a new system out called the *Expeditionary Life Support System (ELSS)*.

An ELSS is capable of supporting smaller units than the Force Provider and comes in 15 triple containers (TRICONs). This system can be fitted to the deployment by adding units to house more Soldiers. One system can be transported on one C-17 aircraft and contains a kitchen, a dining facility, billeting, latrines, showers, a laundry facility, power generation, and a water reuse system.

For the Fort Leonard Wood demonstration, an eight-man team, from the only Active Army force provider company, set up all the facilities in less than four hours.

Additional capability packages can be added, to include facilities for cold weather, MWR, chapel, prime power, fuel storage and distribution, batch laundry, and a kitchen. Simple systems are usually best when deploying to contingency operations, and this system is simple to set up, operate, and maintain.

The current laundry system contains four washers and dryers that will be replaced by a commercial batch laundry system in the future. These washers and dryers are containerized and have onboard water heaters and pumps for the water supply and for removing the gray water. The showers have four shower stalls, onboard water heaters, and two sinks. The gray water removed from the showers, sinks, and laundry is sent to the water reuse system, which will treat the gray water to potable standards and store it for reuse in the showers and laundry. The system will treat thousands of gallons per day with a 75 percent recovery rate.



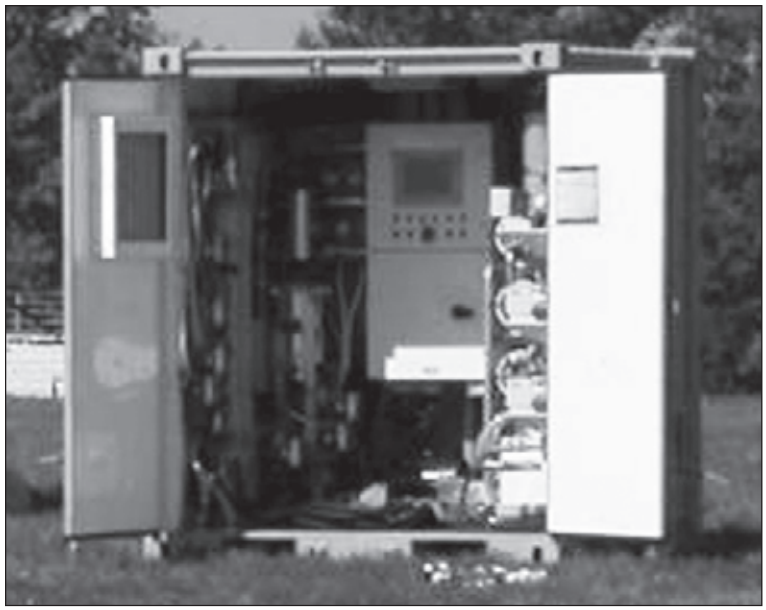
The ELSS generators can power the entire base camp.

It can operate for seven days without an operator present and contains a self-diagnostic system, making maintenance very simple.

The kitchen/dining facility includes a cook-and-hold oven, a steam-and-hold countertop steamer, a 6-gallon steam kettle, an undercounter refrigerator, two refrigeration units, and a griddle. The system will feed several hundred Soldiers, and can be upgraded to feed even larger camps.

Officers from the Engineer Officer Basic Course, the Engineer Captain's Career Course, and the Warrant Officer's Basic Course toured the prototype base camp and were impressed with how easily and quickly the facilities were constructed. And several general officers and brigade commanders who visited the demonstration had positive comments on the power distribution system and the waste water reuse system. Without a doubt, the Quartermaster Corps has developed an excellent system that will aid our Soldiers in the accomplishment of their mission.

Having a base camp proponent to help coordinate agencies and share information would be a step in the right direction toward solving some of the problems we are having in deployed locations. Hopefully, in the near future, TRADOC will assign the proponency to the Engineer School. If this occurs, expect new base camp training, doctrine, and concepts to evolve over the next few years. For more information about the base camp proponency, contact Michael Wolford at (573) 329-1927 or e-mail him at <*michael.wolford1@us.army.mil*>. (Also see the April-June 2006 issue of *Engineer*, pages 28-29.)



The base camp water reuse system treats thousands of gallons of water each day.

Mr. Wolford is an environmental training specialist for the Directorate of Environmental Integration at the United States Army Engineer School, Fort Leonard Wood, Missouri. He recently retired from the Army after more than 24 years of service. He holds a bachelor's in environmental science from Drury University, Springfield, Missouri, and is currently working on a master's in environmental management from Webster University, Saint Louis, Missouri.



Honoring a Patriot

By Captain Darrin W. Haas

Major General Hugh Barbee Mott, former Adjutant General of Tennessee and a hero at Remagen Bridge during World War II, devoted his life to the service of his state and country. He was an inspiration to all Soldiers, epitomizing courage, dedication, and bravery.

Born in Nashville, Tennessee, on 14 August 1920, Mott graduated from East Nashville High School in 1939, where he got his first taste of the military as a captain in the Reserve Officer Training Corps. He later attended the Marion Military Institute in Marion, Alabama, a preparatory school for all the military service academies, where he focused on attending West Point.

Mott was quickly recognized as a diligent young man, and after attending Marion Institute, the legendary General Bob Neyland elected him for a temporary job as a rodman with the United States Corps of Engineers. Mott worked on the Wolf Creek Dam from August 1940 until January 1941, while applying for entry into West Point. As war swept through Europe, young Mott gained employment at the Vultee Aircraft plant in January 1941. He worked 70 hours a week as the company raced to build dive bombers the Allies would desperately need.

Once the United States entered the war, Mott enlisted as a private in the Army on 1 November 1942. He reported to Fort Eustis, Virginia, for basic training and specialized in antiaircraft artillery. He was promoted to corporal before shipping out to Camp Davis, North Carolina, on 1 March 1943 to attend Artillery Officer Candidate School.

Quickly completing Officer Candidate School, Corporal Mott was commissioned a second lieutenant on 3 June 1943. He remained as an instructor at the facility until 10 February1944, when he transferred to the Engineer Branch and attended Engineer Basic Officer School at Fort Belvoir, Virginia.

Second Lieutenant Mott completed engineering school on 24 March 1944 and was assigned as a platoon leader in the 9th Armored Division Engineer Battalion at Camp Polk, Louisiana. As a combat engineer, Mott and his company were responsible for working directly with combat troops in numerous capacities—from construction and repair of roads and bridges, to the demolition and deployment of mines, explosives, and assorted booby traps.

Mott and the 9th Armored Division deployed for Europe on 20 August 1944 to take part in the liberation of France, landing at the beach in Normandy on 9 October1944. Through October, he moved east across France, engaging in fierce combat in the Battle of the Bulge. The Germans eventually lost ground and retreated into Germany, destroying bridges and crossing over the Rhine River to halt the American advance.

On 7 March 1945, the 9th Armored Division and now First Lieutenant Mott, who was promoted in February, arrived at the town of Remagen en route to Sinzig. Surprisingly, the Ludendorff railroad bridge across the Rhine River was still intact. As German troops were still retreating across the bridge, Colonel Leonard E. Engeman, Commander of the 14th Tank Battalion, ordered that the bridge be taken intact. He deployed his troops to attack and secure the site, soon learning that the bridge was rigged with explosives and scheduled to be destroyed within minutes.

Colonel Engeman ordered Mott, with the help of two of Mott's most reliable Soldiers—Sergeant Eugene Dorland and Staff Sergeant John Reynolds—to prevent the destruction of the bridge, which had already been weakened by German soldiers through a series of explosive charges, artillery, and mortar fire. After receiving the order to proceed, First Lieutenant Mott heroically and under fire led his team to the bridge. The Germans had blown a huge crater in the approach to the bridge, prohibiting the use of tanks, but giving some cover for the small team.

After a quick visual reconnaissance from the crater, Mott and his team raced across the entire length of the bridge, cutting the wires leading to a multitude of explosive charges, all the while under intense fire from snipers, machine guns, and 20-millimeter guns. As the teams were cutting various wires to the explosives, Mott witnessed a tremendous explosion on the far side of the bridge. He thought he might be too late, but the explosion was a minor blast that caused only some structural damage on the far side.

The team continued its mission, with Mott discovering four packages of TNT weighing 30 pounds each, as well as one 600-pound charge rigged to explode. The team disabled the charges and threw them into the river. Sergeant Dorland discovered the main cable to the explosives, but could not cut it with his pliers. Without hesitating, he shot the cable with his carbine, completely severing the line.

As the final charges were being disabled, an infantry platoon arrived to secure the bridge. Mott called for his platoon to be brought up to begin repairs on the structure in order to move tanks across. He heroically led his platoon, under heavy sniper and machine gun fire, to patch the gaping hole in the bridge planking. They worked frantically on their hands and knees to repair the damaged bridge, eventually allowing tanks to cross and ensuring the Allies an eastern foothold on the Rhine.



Mott became Commanding General of the 30th Armored Division in April 1968.

"...Mott was awarded the Distinguished Service Cross, the commendation citing his 'unhesitating action and cool courage' amid intense enemy fire aimed directly at him."

The skill, speed, and boldness of the team's successful mission won resounding congratulations and praise from high-ranking military officials. General Dwight D. Eisenhower was reported to be jubilant. General Omar N. Bradley said, "…this bold advance, characterized by able willingness to chance great risks for great rewards, speeds the day when our full forces can come to grips with the enemy."

For this heroic act, First Lieutenant Hugh B. Mott was awarded the Distinguished Service Cross, the commendation citing his "unhesitating action and cool courage" amid intense enemy fire aimed directly at him. Sergeant Eugene Dorland and Staff Sergeant John Reynolds were also awarded the Distinguished Service Cross. Officials at the time said the war was probably shortened by about six months due to the team's action, perhaps preventing 5,000 to 10,000 Allied casualties.

After the battle at Remagen Bridge, Mott continued to fiercely engage the German Army, pressing into Germany; fighting in the capture of Limberg, Frankfurt, and Leipzig; and heading into Czechoslovakia just before V-E Day. At the end of World War II, he was assigned to the Engineer Battalion of the 90th Infantry Division. He served in the Army of Occupation as a platoon leader and company commander until returning to the United States in 1946. He was separated from active military service on 9 June 1946 and entered the Reserves with the rank of captain.

Mott returned home to Tennessee after the war as a highly decorated Soldier and greatly admired individual and was soon called on to run for public office. He won election to the Tennessee House of Representatives in 1948 and served until 1951.

After three years in the Reserves, Captain Mott decided to join the Tennessee Army National Guard. On 15 March 1949, he was assigned as operations and training officer of the 173d Armored Group in Jackson, Tennessee. He quickly rose through the ranks and was promoted to brigadier general on 28 April 1964. He became the Commanding General of the 30th Armored Division in April 1968.

From 4-14 April 1968, Brigadier General Mott commanded Task Force Bravo, a force of more than 3,300 Guardsmen, during civil disturbances in Nashville following the assassination of Dr. Martin Luther King. Miraculously, without loss of life, Mott led Guardsmen, city police, and State Troopers into Tennessee's A & I University dormitories while under sniper fire. He searched and confiscated weapons and tools used previously to set fire to the Air Force Reserve Officer Training Corps building.

Mott earned his second star on 28 June 1968, and on 1 December 1968, Major General Mott was named Adjutant General for the State of Tennessee by Governor Buford Ellington. He simultaneously acted as Commander of the 30th Armored Division until February 1969. Mott worked tirelessly as Adjutant General, a post he would hold until 26 May 1971, during a period of intense civil unrest. He was released from the Tennessee Army National Guard on 31 May 1971 and worked for the National Guard Directorate until retiring from the Tennessee National Guard in November 1975.

In tribute to Major General Mott, the United States Army Engineer School, located at Fort Leonard Wood, Missouri, named the Bachelor Officer's Quarters building "Mott Hall" in his honor. The building showcases a portrait of Mott with an impressive display of his World War II exploits.

Major General Hugh B. Mott died in June 2005 at the age of 84, after spending more than 33 years in the service of his country. Tennessee Guardsmen remember Mott as a courageous patriot who always led from the front. His commitment to duty as a Soldier, public servant, and human being illustrated his impeccable character, limitless courage, and stalwart commitment to his country, Tennessee, and his fellow man.

Note: The Tennessee National Guard recently broke ground on the new Mott Armory at the Tennessee National Guard State Headquarters in Nashville.

Captain Haas, the Command Historian for the Tennessee Army National Guard, is Commander of the 269th Military Police Company. He previously commanded Detachment 1, 267th Military Police Company, and deployed to Iraq as platoon leader of the 267th. He has been mobilized for Hurricane Katrina relief, Galatin tornado relief, and a southwest border mission and spent five years as a United States Navy rescue swimmer. He holds a bachelor's in history from the Tennessee Technological University.

Engineer Update

Engineer Dog Handlers Needed! The Engineer Canine Detachment Program continues to grow. Exceptional military occupational specialty (MOS) 21B combat engineers are needed to become dog handlers and work as part of a Specialized Search Dog (SSD) or Mine Detection Dog (MDD) Team. Our Canine Detachments are a major part of the theater commander's counter improvised explosive device (IED) measures. The Engineer Regiment is constantly responding to increased requirements for dog teams in support of Operation Iraqi Freedom and Operation Enduring Freedom commanders. Interested 21Bs in the rank of specialist through sergeant must be physically and mentally capable of deploying and working independently for maneuver commanders. Handlers must be mature, articulate, assertive, and self-motivated Soldiers who have no fear of dogs. Initial screening for interested Soldiers will be conducted telephonically. The names of potential candidates will be forwarded to the Human Resources Command Engineer Branch for assignment consideration.

The points of contact are <*bernard.a.westover@us.army.mil*> (573) 544-6266 or <*robert.p.reed@us.army.mil*> (573) 563-5910.

Transition From ARTEP MTPs to CATS. The U.S. Army is in the final phase of transitioning from using the Army Training and Evaluation Program (ARTEP) mission training plans (MTPs) as a collective training tool to using the combined arms training strategy (CATS). A CATS is a unit training strategy which, as an entity, takes the entire training planning process from the cradle to the grave. A CATS is developed from a unit's base table of organization and equipment (TOE) and Department of the Army-approved mission statement. They are designed using the crawl-walk-run training model. Commanders will make the final determination as to which tasks should be trained and at what level the training should begin, since they will know their unit's training status. Included in CATS are the required training resources such as Class III and Class V materials and training aids, devices, simulators, and simulations (TADSS).

The current ARTEP MTPs that are located on the Reimer Digital Library (RDL) are scheduled to be removed from the RDL in February 2007. Once this is complete, all CATS will be located on Army Knowledge Online (AKO) on their own dedicated page. The planned end state is movement of CATS to the Digital Training Management System (DTMS) once it is fully fielded. Additionally, the Collective Training Division of the United States Army Engineer School developed a Web site on the Engineer Portal which will also have links to CATS and files available for download. The following links will take you to the AKO CATS site and to the Engineer Portal.

AKO CATS Link: <*https://www.us.army.mil/suite/portal/index.jsp*>

Engineer Portal Link: <*https://www.mwu.army.mil/portal/eng/index.php*>

The point of contact at the Engineer School Collective Training Division is <*joseph.toth1@us.army.mil*> or call (573) 563-7821.

Center for Engineer Lessons Learned (CELL). The United States Army Engineer School CELL needs your help. To keep training, doctrine, and combat developments current and to prepare for the future, it is critical that the school continuously receive relevant engineer observations, insights, and lessons (OIL). The CELL can derive information from a variety of sources: unit after-action reports (AARs); tactics, techniques, and procedures (TTP) used by units in and returning from theater; Soldier observations/submissions to the Engineer School; and requests for information (RFIs). This information is used to conduct doctrine, organization, training, materiel, leadership and education, personnel, and facilities (DOTMLPF) gap analyses and to determine solutions. These solutions are distributed to the Engineer Regiment via new doctrine and training products, *Engineer* (The Professional Bulletin of Army Engineers) and other publications, and Web sites and by answering RFIs. (The Engineer School RFI Web site provides the Engineer Regiment a reachback capability.) You can help by forwarding any of these materials from your unit's deployment to the CELL. Unclassified information can be sent to <*Doctrine.Engineer@wood.army.mil*>. Classified information can be sent by secure Internet protocol, routed (SIPR) e-mail to <*reginald.snodgrass@us.army.smil.mil*>.

The point of contact is <*reggie.snodgrass@us.army.mil*> or call (573) 563-6121.



Sacrifices For Freedom

Operation Iraqi Freedom III

94th Engineer Battalion (Combat) (Heavy)

535th Engineer Company (Combat Support Equipment)

"WOLVERINES!"

January 2005 - January 2006

Mosul, Iraq

This hand-drawn charcoal illustration was commissioned to commemorate the accomplishments of the 94th Engineer Battalion and the 535th Engineer Company during Operation Iraqi Freedom III. The focal point of the print is Sergeant Eric Schei, one of the Wolverine Warriors wounded in combat.

The artist, Staff Sergeant Carlos Arguello, is currently stationed at Fort Stewart, Georgia. This is his second commissioned print to commemorate units deployed in support of the Global War on Terrorism. His first print represented the 3d Brigade Combat Team/1st Infantry Division's deployment in support of Operation Iraqi Freedom II.

The print was unveiled on 27 October 2006 at the Fiftieth Anniversary Celebration of the Fort Leonard Wood Mid-Missouri Chapter of the Association of the United States Army (AUSA).

Proceeds generated by print sales will go to the Fort Leonard Wood AUSA Wounded Soldier Fund. For more information, call (573) 329-2377.



BEST SAPPER COMPETITION

FORT LEONARD WOOD, MO

2007



The Sapper Leader Course hosts the Engineer Regiment's world-class Best Sapper Competition 1-3 May 2007 to determine the best Sapper team in the Army.



Visit ***http://www.wood.army.mil/sapper*** for eligibility and registration

SAPPER TRAINING DETACHMENT

HHC, 577TH ENGINEER BATTALION

1ST ENGINEER BRIGADE

PIN: 083694-000