

KOSOVO:

The Engineers' Story



Two-and-a-quarter centuries have passed since Richard Gridley and his men, under orders from General Washington, constructed the earthwork fortification that would protect American soldiers in the historic Battle of Bunker Hill. From that point forward, the Engineer Regiment has been “first in, last out” for our nation in war and in peace, on the front lines and behind the scenes, over air, land and sea.

Changes in tactics, technology and training have dramatically altered the face of American military engineering. Yet the most recent challenge has served to reclaim its heart:

One Regiment, One Fight.

Since the summer of 1999, United States engineer elements from across the Armed Services, uniformed and civilian, including the private sector, have worked as one on a straightforward mission: House the American force and its allies in Kosovo. And by the way, do it fast and do it right.

This special edition of Engineering in Europe is a compilation of these engineers' stories, drawn mostly from first-hand accounts. It speaks of what they have done so far, how they did it, what they still have left to do, and what lessons they have learned (and are still

learning) for missions to come.

COVER: MAJ John Keenan, Executive Officer of the 9th Engineer Combat Battalion, holds the regimental flag at the first SEAhut to be completed at Camp Bondsteel, Kosovo

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One Team, One Regiment

The Task Force Engineer reports

By COL Robert McClure, Commander, 1st Infantry Division Engineer Brigade

For the better part of 1999, much of the world's attention was focused on Serbian President Slobodan Milosovic's ethnic atrocities in Kosovo, as well as NATO's 78-day bombing campaign that eventually compelled him to stop and accept deployment of an international peace-keeping force in that beleaguered province. American soldiers first entered Kosovo on June 12 as part of that force and began establishing a safe and secure environment, as was their mission. The media gradually began to pull out of Kosovo. By the end of the year it—like Bosnia—was essentially a “backwater” of international interest. The Russian war in Grozny, the new Millennium celebrations and other issues commanded headlines.

For the Engineer, that is a bit of a shame because what happened in Kosovo after June is only just short of a miracle. Two base camp “cities” were erected in record time to house the American force and its allies before the onset of a harsh Balkan winter. For me personally, Kosovo after June 1999 was an engineer's dream. While perhaps it is not news to the rest of the world, the Engineer Regiment again proved its versatility and worth to the Army and to the soldier.

Planning

The engineer planning for operations in Kosovo started months before the first bomb was dropped. At the outset, planners wanted to use the lessons learned in Bosnia and convinced decision makers to reach base camp

An EOD unit attached to the divisional engineer brigade cleared and marked mines and UXO.



Oct. 1 saw housing to accommodate 5,000 at Bondsteel, 2,000 at Monteith

“end state” as fast as possible. When the Army moved across the Sava into Bosnia in 1995, because of uncertainty about the mission's duration, soldiers were housed first in tents—in the winter! Only years later were they moved to semi-permanent SEAhuts on base camps. Engineer planners knew it was much more cost effective to forgo this gradual approach in favor of building end-state SEAhuts right away. Operational commanders agreed, so from very early on it was universally agreed to build end-state camps as fast as possible.

The First Infantry Division, “The Big Red One,” was tapped to be the first unit in Kosovo. The Engineer Brigade commander at the time, COL Joseph Schroedel, and his staff worked feverishly on a base camp plan. Incorporating requirements from force protection experts and safety specialists, they laid out a base camp “template” that depicted where soldier living areas should be arranged in relation to helicopter flight lines, ammunition holding areas, etc. At the same time, planners also matched geologic data indicating possible underground water sources from the Engineering Research and Development Center in Vicksburg, MS to possible camp locations that had been selected from satellite imagery. The result was a recommendation to build Camp Bondsteel on approximately 900 acres of rolling wheat field for the 5,000 American and allied soldiers sent there to keep the peace.

Organization

The engineer force assembled in Kosovo in the summer of 1999 consisted of more than three battalions under the command and control of the 1st ID Engineer Brigade. Foremost was the organic 9th Engineer Battalion, whose mission was to provide direct support to the Big Red One's 2nd Brigade Combat Team.

Attached construction units included the 94th Engineer Combat Battalion (Heavy) with the 535th Combat

Support Equipment Company from Germany, Naval Mobile Construction Battalion 3—Seabees—from California, as well as A Company, 864th Engineer Battalion from Fort Lewis, WA and the 568th Combat Support Equipment Company from Fort Riley, KS. Counting EOD attachments and approximately 30 officers and civilians from the U.S. Army Corps of Engineers, the count came to more than 1,750 under the 1st ID Engineer Brigade’s command and control.

Camp Bondsteel’s perimeter wire and one of nine guard towers



Mission

The mission was simple, daunting, and as broad as any V Corps has ever faced. First and foremost, provide direct engineer support to the maneuver commander, with mobility and force protection, to establish a safe and secure environment in sector. This was not easy and was to challenge the 9th Engineers every day until they left theater.

Second, and at the same time, surge the military construction assets and integrate them with the base sustainment contractor, Brown & Root Services Corp., to build two base camps for 7,000 troops.

That would have been a tall order in itself had not the V Corps commander added a deadline: 1 October. Then LTG Hendrix’s challenge to the engineer was to make sure that housing for soldiers was built before winter set in, and he didn’t care if that happened to be less than 90 days after many of the construction units closed on site.

The engineer mantra in Kosovo thus became, “It’s the SEAhuts, stupid,” and “No idle engineers!” These two phrases were adopted as unofficial mottos to help leaders at all levels to discern the highest priority when conflicts arose—build SEAhuts—as well as to remind all that there were more engineer missions than engineers, so large amounts of time off was a luxury we could not afford.

Sapper role

The 9th Engineer Battalion hit the ground first in Kosovo and began building triple standard concertina fences around the two base camps—Bondsteel and Monteith. In all, elements of the 9th would build over 17 kilometers of fence in Kosovo, 10 kilometers alone around the perimeter of Bondsteel. Additionally, over 320 kilometers of roads were reconnoitered and 75 bridges classified for military use by the sappers. Because the magnitude of the overall peacekeeping mission was so large, one com-



The 9th Engineer Combat Battalion built bunkers around SEAhuts

pany from the 9th was reorganized as infantry and attached to a mechanized infantry battalion to conduct presence patrols near the city of Gnjilane. The 9th cleared mines and ordnance that impeded maneuver. They also built force protection bunkers to protect base camps against possible indirect fire.

Camp Monteith

Meanwhile, the construction effort began in earnest around the first of July with the arrival of the Seabee battalion overland from Albania where they had been a part of Task Force Hawk during the air war. The Seabees occupied the sector’s second camp, Camp Monteith. It was on the edge of Gnjilane in what was Yugoslav army artillery barracks before the war. The camp was largely untouched, except for two precision bomb craters that destroyed the maintenance facilities. But retreating forces or the locals trashed and looted the buildings so that it took weeks to make them usable.

The closeness of city raised force protection concerns that led us to abandon many of the buildings on the base. We built most of the camp in an adjoining field—more than 75 SEAhuts and support structures, for a force of 2,000.

It is perhaps a curse of fate that Camp Monteith will be constantly overlooked by those looking for engineer stories in Kosovo. While Camp Bondsteel is the American headquarters and larger site, Camp Monteith is no less an engineering marvel. The Seabees refurbished buildings and



Maintenance facilities at Camp Monteith were bombed and had to be removed

ran electricity and water to all soldier quarters. They set up large fest tents for facilities such as weight lifting and recreation rooms.

Monteith is the locus of tactical activity in the American sector because of the mixed ethnicity of the surrounding population, and its proximity to the Russian battalion, which serves alongside other peacekeepers. Indeed, the first American fire support for Russian forces since WW II (155-millimeter illumination rounds) were fired from artillery positions built by Seabees at Monteith.

Camp Bondsteel

Camp Bondsteel is the “Grande Dame” in Kosovo of what engineers do. Spread over almost 900 acres of rolling wheat field, it was picked early on to become what it is today, the major American base camp in theater. Within its fenced perimeter is a helicopter airport with over 50 parking pads, over 175 SEAhuts for around 5,000 soldiers, a 30,000 square foot headquarters building, an ammunition holding area, motor pools and chapels, as well recreation and dining facilities for soldiers. Water from several wells on camp is piped into each hut from huge holding bags and there is even a wastewater treatment plant for effluent. Camp Bondsteel benefited most from all the staff planning conducted earlier. The layout is very similar to the original template, adjusted only for terrain and unforeseen sight conditions.

Vital statistics

The numbers involved in the effort of building both camps are staggering. At its height, 1,000 expatriates hired by the contractor, plus more than 7,000 Albanian local nationals, joined the 1,750 military engineers. From early July until well into October, construction at both camps ran 24 hours a day, 7 days a week, with perhaps a half-day each week for soldiers to do personal and equipment maintenance. The final tally for this period was about 10 million manhours and 500,000 equipment hours.

More than 6 million board feet of lumber, 2 million square feet of plywood, 84,000 sheets of drywall, 200 tons of nails, and 100 miles of electrical cable were consumed. More than half a million cubic yards of earth were moved on Bondsteel alone. The amount of gravel used at both camps would have covered a two-lane road from St. Louis to Kansas City. In the end, we built more than 700,000 square feet of living space—equal to a subdivision with 355 houses—in less than 90 days!

SEAhuts

Camp construction centered on the SEAhut, short for Southeast Asia hut, a theater of operations design that made its debut in Vietnam. A SEAhut is wooden housing that uses standard 4-by-8 foot plywood as its basic building material. As modified for the Balkan climate, a SEAhut is 92 feet long by 32 feet wide. Each has five sleeping bays and a gang latrine. Six soldiers share a room almost exactly the size of the familiar GP medium tent.

Planning factors were six soldiers per bay, 30 soldiers per SEAhut, and 120 soldiers—about a company’s worth—

in a “quad” of SEAhuts that was surrounded by a force protection wall. Floors were plywood covered by linoleum, and walls were sheet rocked for fire resistance. Eight electrical outlets per bay were installed along with smoke detectors and emergency lights. Vertical supports rested the huts on concrete footers that were placed on compacted earth and gravel. No foundations were used and no footers were placed on fill for fear of settlement. One heater/air conditioner was at each end along with a small window. The electricity, water and communications utilities were routed in and out underground. Walls and other sections were easily prefabricated and construction was quick. By the end of September, it took 18 days from initial site prep to complete a SEAhut for 30 soldiers. Dozens were under construction at any one time.

Command and coordination

Overseeing the sapper and construction engineer effort in Kosovo was the First Infantry Division’s Engineer Brigade. A relatively new entity—engineer brigades within divisions were formed less than 10 years ago—the organization proved its worth by smoothly integrating engineers from outside the division and around the world into the task force effort.

Attached to the brigade was a talented team of military and civilian engineers from the U.S. Army Corps of



Brigade assets met daily for Battlefield Update Brief

Engineers, Baltimore District. Their technical expertise ranged from structural to electrical to environmental engineering and more. They integrated the facility requirements of all units and agencies into work plans and developed scopes of work and final designs. They also insured both the base sustainment contractor and military construction units met standards. They brought TeleEngineering equipment for satellite video teleconferencing. This allowed real-time consulting with other Corps experts at Europe District and in the U.S. More than once, answers to tough engineering questions were no more than a phone call away.

A construction management section attached to the brigade staff assisted the construction battalions in design and layout of various projects. Finally, the brigade staffed a Mine Action Center in the Task Force headquarters. They

94th Engineer Combat Battalion (Heavy) built roads with drainage structures



maintained a database of all known and suspected mine location in sector and coordinated with the United Nations and humanitarian demining operations.

Meeting challenges

Clearly, any endeavor this size has challenges. Shortly after site preparation began at Bondsteel, a 36-inch natural gas pipeline was discovered running under the camp—right where we wanted to take 3 feet of cut! It was easier to redesign the camp around the pipeline than dig it out. That is why today a “no construction” strip runs northwest to southeast among the SEAhuts.

The total absence of civilian sewage treatment facilities in Kosovo forced early diversion of critical horizontal equipment to build sewage lagoons so we would not foul the local watersheds.

Outside the wire, and at the other end of the engineer’s mission spectrum, the 9th Engineers were given several ethnically mixed villages to control while someone occasionally terrorized the area with small arms and mortar fire at night. Although the “Mad Mortar Man” was not caught, he did stop after a section of tanks and an MP element were placed under control of the engineer lieutenant in town. The combat engineer’s ability to inspire confidence and maintain control under extreme circumstances in this small village speaks volumes of the American soldier and junior leaders who made it happen on the ground.

Lessons learned

The engineer lessons learned in Kosovo are few and simple. First, the brigade-level command and control headquarters was essential to the Task Force FALCON’s early success. As the Army looks ahead to the 21st Century, some have questioned the need for engineer brigades in divisions. In Kosovo, the brigade engineer led the enormous engineer effort required to get soldiers under cover before winter. The magnitude of the mission—commanding over 1,700 soldiers while integrating the effort of nearly 10,000 civilian and contract employees—would have swamped a normal engineer battalion staff.

Second, our engineer soldiers are well trained and led—as evidenced by the broad range of missions they accomplished from patrolling as infantry to major camp

construction. However, and this is not news, their equipment is outdated. Caterpillar no longer stocks parts for some of the 94th Engineers’ bulldozers. The only parts source for many of their prime movers and trailers were cannibalization points in the U.S.

Finally, we need to put muscle back into the sapper battalions. They have been cut to the bone and are on the border of becoming irrelevant on the battlefield. TOE strength for line companies is now less than 100. In June 1999, units were manned at less than 90-percent strength. When you subtract non-deployable soldiers—all units have them—you have 65-man companies patrolling sectors as infantry, or trying gamely to conduct route-clearing operations that would be so much easier with more soldiers. It is time to stop doing more with less.

As the millennium changed, so did the engineer force in Kosovo. Although the camps were built by Christmas, a significant “punch list” of projects remained. Taking over from the 9th Engineers was their sister unit, the 82nd “Blue Babe” battalion from Germany. A National Guard combat heavy construction company, B Company, 142nd Engineer from North Dakota, deployed to take over duties from the 864th and 568th companies. Additionally, a company-sized “air detachment” of Seabees replaced NMCB-3 to finish work at Camp Monteith.

The story of American forces in Kosovo is far from

Engineers made presence patrols in troubled villages



over. In fact, it has just begun. But unlike the early years in Bosnia, soldiers who arrive at Bondsteel and Monteith find warm, dry places to live and prepare for their peacekeeping mission.

In Kosovo, the Engineer Regiment came together with the experience, planning and resources to build it right the first time and in record time.

We were, and remain, one team, one regiment, one fight—active and reserve, civilian and military. Everyone who sees what we created in so short a time must be impressed by the “can do” spirit, that answered America’s call to action.

Essayons!! 🇺🇸



Mission complete: "Soldiers in SEAhuts by 1 October"

(From left) Dedicating the first SEAhut at Camp Bondsteel on Sept. 2, 1999 are BG Steven Hawkins, Deputy Chief of Staff, Engineer, U.S. Army Europe; COL Robert McClure, Commander, 1st Infantry Division Engineer Brigade and Task Force Falcon Engineer; and MG John Abizaid, Commander, 1st Infantry Division.



Camp Bondsteel's residents wasted no time moving into their new homes-away-from-home

Team roster—Key players and their roles

The view from Headquarters U.S. Army Europe

By Bryan Driver, Office of the Deputy Chief of Staff, Engineer, Headquarters United States Army Europe

The Engineer Regiment had an arduous task during U.S. operations in Kosovo in 1999. Military engineers were up to the challenge and led the way—building base camps, maintaining roads and bridges, and clearing mines and unexploded ordnance.

The Office of the Deputy Chief of Staff, Engineer, (DCSENG), Headquarters, United States Army Europe and Seventh Army (USAREUR) provided engineer-staffing support to deployed forces.

USAREUR helped plan movement of the massive equipment inventory to Kosovo



Supporting Task Force Falcon

While continuing to focus on providing quality support to soldiers, civilians and family members stationed in central Europe, the DCSENG staff provided comprehensive and timely Title 10 support to elements deployed to Albania, Kosovo and Macedonia.

The objective of the DCSENG was to ensure sourcing and timely movement of engineer units from bases in Europe and the United States. Navy Seabees and Army combat heavy battalions, combat support equipment companies and firefighting detachments were rapidly deployed into the theater. Close coordination of unit movement ensured adequate overlap of equipment and personnel, with seamless transfer of authority and relief in place operations.

The DCSENG Engineer Operations Directorate (EOPS) was the hub for the planning and execution of USAREUR Engineer Title 10 support to Task Force Falcon in Kosovo and Macedonia, and Task Force Hawk in Albania. The new construction estimate for the three base camps was \$330 million. EOPS also continued to provide Title 10 support to Task Force Eagle in Bosnia-Herzegovina during this very challenging period.

Applying past lessons learned

“USAREUR, V Corps and Task Force Falcon capitalized on lessons learned in Bosnia and familiarity with

Security measures such as camp gates were partly based on lessons learned in Bosnia



Camp Able Sentry to smoothly transition forces into the theater,” said LTC Jim Shumway, Chief, Military Engineering and Topography Division, DCSENG. “Previous investments in Able Sentry allowed it to be used as a staging base for the operation.”

Knowing U.S. forces would be in Kosovo for an extended period allowed planners to build using temporary construction standards (3- to 5-year planning horizon) early during the deployment. Shumway added, “In Bosnia, construction was more incremental because of the political implications and changing operational requirements as the mission went from peace enforcement to peacekeeping. In Kosovo, we knew we were going to be there a while, so the decision was made to build SEAhuts in an effort to be good stewards with our resources. The decision to move directly from Tier II tents to SEAhuts avoided spending millions of dollars to stair-step construction of base facilities over several years. Additionally, construction materials used for Task Force Hawk in Albania were harvested and shipped for use in Kosovo.”

Fewer base camps were constructed in Kosovo due to geographic, economic and operational considerations. “Camp Bondsteel is literally a city built from the ground up on what was a wheat field,” Shumway said. “Camp Monteith was an old Yugoslav artillery base. We were able to use some existing facilities, although many were damaged by bombing during Operation Allied Force.”

Much of what the Engineer Regiment achieved in Kosovo was based on experience gained in Bosnia. USAREUR planners built on the success of the Base Camp Coordinating Agency and the Joint Acquisition Review Board process. Working with the U.S. Army Engineer School at Fort Leonard Wood, they used lessons learned to develop contingency engineer doctrine into a long-term base operations strategy. With this framework, military engineers quickly established base camp master plans so construction could begin on SEAhuts, force protection bunker emplacements, and other more durable facilities.

Countermine measures

While Kosovo and Bosnia are different in many respects, there is also common ground. The threat from mines was less significant but the threat from unexploded ordnance was much greater. To meet this threat, DCSENG coordinated the use of countermine systems. These included the Panther I (a robotic M60 tank chassis with mine rollers to proof track width routes, the Mini-flail (a robotic flail that clears footpaths through anti-personnel mines), and the Mine Clearing Armor Protection Kit, an armor plating kit that is bolted to a bulldozers operating in mined areas. Technical assistance teams from the Joint Project Office-Unmanned Ground Vehicles (JPO-UGV) deployed to Kosovo to train and assist in the maintenance of the remote mine clearing systems.

EOPS also coordinated with USAREUR and national agencies for special mapping products, countermine equipment, and technical expertise. For example, a quarrying expert from the Engineer School spent several weeks in Kosovo helping find a quarry source for site preparation materials. A Mabey-Johnson bridging expert deployed to survey potential bridging sites.

Fire protection specialists from the DCSENG Public Works Division deployed to enforce fire safety standards. The 60th Topography Detachment in Schwetzingen,



The Panther demines by remote control

Germany, developed more precise UXO data from Air Force records. They also provided topographic products on urban areas and other locations of interest.

TeleEngineering

The Corps of Engineers “TeleEngineering” program was funded by DCSENG to improve communications between engineers on the ground and elsewhere in Europe and the U.S. Video-teleconferences—held twice weekly by satellite—allowed face-to-face discussions between the Task Force Falcon, the Corps’ Europe District, DCSENG, the engineer brigades and other elements.

Snow and ice removal

DCSENG was also actively involved timely delivery of snow and ice clearance equipment. A team of technicians went to Kosovo to install the equipment and train operators and supervisors. The equipment package included 15 HMMWV-mounted plows, four HMMWV-

USAREUR began moving snow removal equipment into Kosovo in October



mounted spreaders, four 5-ton truck-mounted plows, and four 5-ton truck-mounted spreaders. This equipment was essential for keeping routes clear during the initial deployment and allowed Task Force Falcon to operate during the most severe weather conditions.

Real estate activities

The DCSENG Real Estate Directorate was very provided leasing and real estate support to U.S. Forces in the Balkans. They executed and terminated 105 leases and rentals worth approximately \$206,000, and paid damage restoration settlements of \$160,000 for facilities in Albania.

In Kosovo, U.S. Forces occupied Camp Bondsteel and Camp Monteith under the auspices of U.N. Security Council Resolution 1244. DCSENG formally documents property use until civil authorities can establish validation procedures for title and ownership.

“We have had some unusual challenges in Kosovo,” said Tommy Hill, Deputy Director of Real Estate, DCSENG. “Because of the lack of documentation, we have delayed entering into leases for property usage until civil authorities can determine who actually owns the property. Our field representatives have worked closely with the United Nations organizations in their development documentation procedures.”

DCSENG also coordinated the use of Rinas Airfield in Tirana and port facilities at Durres by working with the government of Albania. A rent-free consignment agreement for use of Camp Able Sentry was negotiated with the government of Macedonia. Temporary use of the Petrovac Airfield and Training Area in Macedonia was arranged with KFOR. DCSENG supports all real estate requirements for the Balkans operations including Task Force Eagle in Bosnia-Herzegovina, and the National Support Element in Hungary and Croatia.

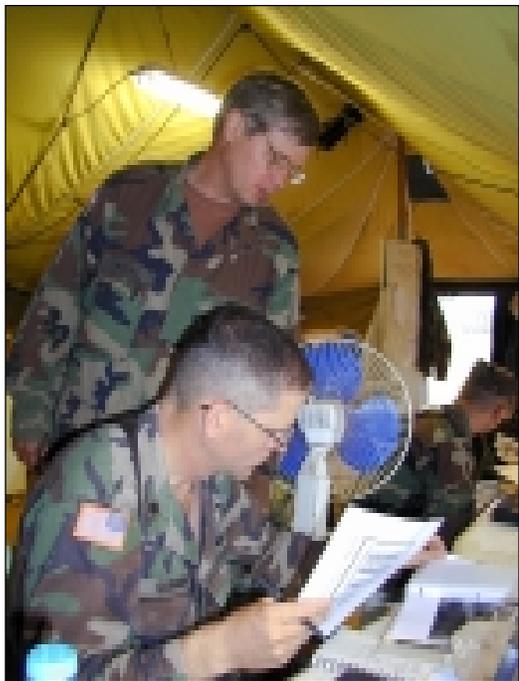
Military and civilian engineers shouldered a heavy burden during Kosovo operations in 1999. Without the efforts of the regiment, soldiers deployed to Kosovo and Albania would not enjoy the high standard of living and quality of life improvements that they have today. Whatever the task, military engineers have met and overcome the challenge. The creed of the regiment says it all: “Essayons”—Let us try. 🇺🇸

The Corps of Engineers delivers

By Dana Finney, Public Affairs Officer, Engineering Research and Development Center, U.S. Army Corps of Engineers

U.S. base camp construction in Kosovo offers a unique experience that can help shape the way the Engineer Regiment engages future missions.

“No single part of this team acting alone could do what we did together,” said COL Robert McClure, Commander, 1st Infantry Division Engineer Brigade. “We can expect these contingency operations to be repeated and while the specifics may change, it’s always going to take the full team of military engineers and industry working together, with the Corps of Engineers at the center to manage it.”



Engineering chief Jim Moore confers with BCCA Director LTC Patrick Guinnane

The Corps of Engineers team, forward deployed to staff the Base Camp Coordinating Agency (BCCA), sat at the hub of a huge engineering effort led by McClure.

With 1,700 Army, Navy and Air Force engineers deployed, this was the largest base camp construction mission since Vietnam. It was also the first experience in using a sustainment services contract to build a military infrastructure of this magnitude. Integrating these assets in a way that achieves the bottom line—quality of life for soldiers—demanded that the Corps produce immediate results at the same time it was breaking new ground in theater engineering.

Engineer mission in Kosovo

In planning the contingency operation for Kosovo, the Army chose to establish two base camps and to commit the engineering resources needed to build adequate facilities quickly. The rationale was based on previous experience in

the Balkans. In Bosnia, due to the projected short-term deployment, troops intended to stay in tents for the duration. When the mission continued through the first cold winter, living conditions deteriorated, with tents poorly heated and often needing replacement as moisture took a toll on the fabric.

“The decision for Kosovo was that we would do it right the first time,” said McClure. “From the time we were on the ground in June, the engineers’ goal was to have soldiers inside before winter—and to only move everyone once.”

“We never had the money up front to do this kind of construction in Bosnia, so we built the base camps there three times,” said BG M. Stephen Rhoades, Commander of the Corps’ North Atlantic Division (NAD). Previously, Rhoades served as 1st ID Chief of Staff in Bosnia.

Call to duty

In June, North Atlantic Division got the mission to assist U.S. Army, Europe (USAREUR) in the Balkans. MG Jerry Sinn, who was then NAD’s Commander, seized the opportunity to put the Corps’ new Regional Business Center concept into action. As a Regional Business Center, the Corps division now coordinates and taps resources Division- and Corps-wide to balance the workload and capabilities of its Districts. Sinn called on New York and Baltimore Districts to help Europe District support USAREUR—giving each clear responsibility for a phase of the mission. This allowed NAD to find the right mix of skills and avoid overtaxing Europe District, which already had resources committed in Albania and Bosnia.

“At first there were two missions—one running the base camp in Albania that had supported the air war; the other preparing for the peace mission in Kosovo,” said LTC Patrick Guinnane. As Baltimore’s Deputy Commander he was assigned to be Chief of the Kosovo BCCA.



CPT Raymond Boyd deployed from the Corps’ Engineering Research and Development Center as S-3

Europe District stayed in Albania to close the base camp operations it managed during the bombing campaign. Meanwhile a new Europe District team took off for Kosovo to set up a BCCA while Baltimore mobilized for the base camp construction mission.

Thanks to good planning, Baltimore District recruited volunteers to deploy when the tasking came. “But we had just one week’s notice to have people at Fort Benning (Ga.) ready to POM,” Guinnane said. POM, or Preparation for Overseas Movement, is a mandatory 8-day, intensive training program for civilians, reservists and active duty personnel deploying to foreign countries.

Guinnane traveled to Georgia on June 13 with an advance that included nine other persons from Baltimore and two from St. Paul and Rock Island Districts. Another from Omaha District caught up with the group in Kosovo. Eleven more volunteers from Baltimore would soon follow bringing the Corps' BCCA construction team to 24.

When Guinnane arrived, Europe District's seven engineer initial entry team, led by CPT Leon Parrott, had launched BCCA operations in a tent pitched in the wheat field that was now been designated "Camp Bondsteel." They helped orient the Baltimore team and handed off the mission. For the next five months, Baltimore team worked in support of the Task Force Falcon Brigade Engineer.

"A contingency operation like this differs from war, where individual engineer battalions would be in the battlefield while Division would stay in the rear area," said COL Michael Pelkey, Europe District Commander. "In Kosovo we needed to have the brigade headquarters forward to synchronize engineer assets. The battalions and Corps' efforts had to be integrated to succeed in such a large construction mission."



Designing MWR facilities such as this chapel was part of the BCCA's mission

had to translate that into a master plan, work out the details required for construction, and coordinate civilian and troop labor to do the work.

"What does a chapel need to have in a base camp? What facilities do the aviators need for an airfield? That's the level of detail you need to be able to write statements of work in a base camp," said Guinnane.

Camp requirements and basic design guidance were defined by the "Red Book," which USAREUR developed based on its Bosnia experience. It describes the facilities and square footage authorized for the population. When a unit comes to the BCCA wanting facilities, the Red Book is the start point for deciding what they need.

Another challenge was the fact that the logistics support contract with BRS that was used to help set up most facilities had no design provisions.

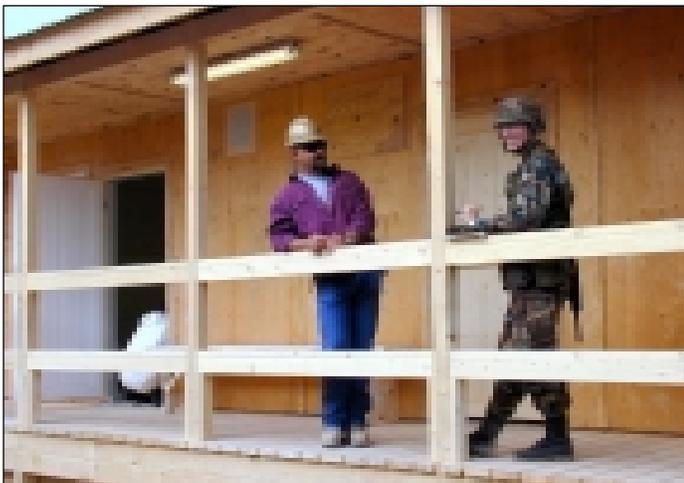
"A critical role for the BCCA was in defining the customers' requirements and then translating them into terms the contractor understands," said Guinnane. "In the process, we brought our engineering expertise to bear."

BCCA member Debra Ford, who is a design team leader in Baltimore, agreed. "It is also what we do for our customers in the district—find out what they really want and translate it into a technical format that is clear to a contractor."

However, base camp design differed greatly from most Corps projects. First, everything built in Kosovo is temporary construction. When the contingency mission is over, U.S. forces will pull up the base camp and leave few traces behind. Second, while District projects may take years from start to finish, base camp structures are designed and built in a matter of days. Third, BCCA project managers do not control a budget, and cannot directly specify the contractor's work.

"We weren't doing project management in the traditional Corps sense," said Lloyd Caldwell, BCCA Deputy Chief.

Contingency operations require diverse skills so most volunteers selected for the BCCA had a multi-disciplinary background. "It was amazing. If one of us identified an area where we were weak, someone turned up with the



BRS brought in over 1,000 expatriates plus hired some 7,000 Kosovars

The other key element in building Kosovo's base camps was Brown & Root Services (BRS), a private company working under a Balkans Sustainment Services contract. The Corps' Transatlantic Programs Center manages this cost-reimbursable type contract, for which BRS competed successfully in February 1999. The Defense Contract Management Center (DCMA) serves as Administrative Contracting Officer (ACO) for the Corps.

Construction at both camps involved a team of soldiers, BRS employees and local Kosovars working together to complete the main infrastructure by winter. The Corps' job was to manage this huge effort while ensuring an adequate quality of life for soldiers in Kosovo.

Defining customer needs

Going into Kosovo, the engineers' challenge was to turn an abstract idea—"build two base camps"—into reality. Starting with the command directive to build SEAhuts and support facilities for 7,000 troops, the BCCA

strength to make up for it, “ said James Moore, a resident engineer for Baltimore who was BCCA Chief of Engineering.

Once the initial facilities were underway, more troops began to arrive. The BCCAs began working on customer requirements prioritized through the Camp Mayor’s office. MAJ Craig Newman, Bondsteel’s Mayor, worked so closely with the BCCA that he felt “like part of the unit.”

“The engineers are the busiest people in camp,” he said.

Many of the active duty military customers sent by the Mayor’s office were not accustomed to working with civilians.

“We had to gain the confidence of our military customers,” said Maria DeLaTorre, BCCA project manager and plans officer who volunteered from Baltimore’s Planning Division. “Every thing worked out once they trusted us and knew we were capable.”

CPT Raymond Boyd, BCCA operations officer, said civilians “had to break into a big fraternity” in creating an



Summer accommodations—civilian Dan Oswald works in his outdoor "office"

effective work relationship with soldiers. Boyd was assigned to Kosovo from his position as plans and programs manager, Cold Regions Research and Engineering Laboratory, Hanover, NH. He and Guinnane comprised the military presence in the BCCA at Bondsteel that facilitated interaction between the team and its customers. CPT Lee Snodgrass headed up the smaller BCCA cell at Camp Monteith.

Flexibility was essential in base camp construction. “There were endless modifications,” according to Newman. “It’s amazing how quickly the BCCA adapts. One day someone found a gas pipe during excavation. Before we knew it, the engineers had cut and pasted the Camp plan and were already working around it.”

Building from ground zero

Base camp construction in Kosovo posed unique challenges that made the Corps’ expertise indispensable. Engineers arrived in a war-ravaged country with no official government, no existing infrastructure, and a local business and materials market that was immature at best.



Dining facilities gradually saw major improvements, moving soldiers indoors and with better food service

Land issues: Real estate was immediately an issue. The first military engineers on the ground staked out wheat fields for Camp Bondsteel’s that been identified through terrain modeling and a security analysis. USAREUR sent a real estate team to the BCCA, comprised of DCSENG real estate officers and two members of the Corps Contingency Real Estate Support Team (CREST). The Corps’ real estate team used internationally accepted procedures in their work at Kosovo.

“The real estate team made an extensive search for records of ownership from Macedonia to Pristina. They queried local residents,” said Caldwell. “All legal documents had either been destroyed or removed. Land ownership records simply did not exist. Different farmers had planted crops, but as best we could determine, the land had been owned by the state.”

The Corps’ real estate prepared documents that showed how much land was taken and its estimated value. And Army Civil Affairs recorded ownership claims by local residents. “When government is re-established in Kosovo, restitution can be requested,” Guinnane said.

As soon as engineers set up the BCCA at what was to become Bondsteel, they began laying out a site plan. “The 94th engineers had surveyed and the 130th Engineer Brigade Construction Management Section (CMS) had roughed out a plan,” said Moore. Together, the BCCA and the CMS developed both camps’ master plans. The plans have been works in progress—updated continually as site and operational requirements evolve.

Quest for water: Basic life support activities require over 300,000 gallons of water a day just for Camp Bondsteel. While that supply could have been trucked in under the BRS contract, the command decision was to drill for wells that would make the camps independent.

“Transporting all the water into the camps would have been a much more expensive option than having some of it available here,” said Clint Kneten, BCCA drilling specialist from Baltimore District’s Engineering Division. “The cost of drilling wells was recovered quickly.”



Water drilling relied on local contractors' equipment, which slowed the process

Camp Bondsteel sits in a rural area where local villagers depend on shallow dug wells for water. There is no central supply and distribution system near this site. Reservoirs in the mountains near Gnjilane were a potential source for Camp Monteith, but reliability and quality were concerns. The water was not considered potable unless the Army could treat it. Initially, water from the mountain reservoirs was hauled to Camp Bondsteel for showers and other nonpotable uses.

To find promising drill sites, the BCCA took advantage of newly acquired TeleEngineering technology. The BCCA consulted by satellite teleconference with hydrogeologists from Europe District and the Corps' Engineer Research and Development Center. Together they reviewed data collected on site at Bondsteel.

"It quickly became clear that we needed more data and a hydrologist from Europe District made a site visit," said Guinnane. "If you know what you don't know, you know where to start."



Army ROWPUs purified water found on Camp Bondsteel

Information acquired from other sources, including the Pristina weather service, German engineers and NATO reconnaissance, filled in some of the gaps. "There's a lot of guesswork in choosing a drill site, but having the right information lets you make educated guesses," said Kneten.

By September, contract drillers had tapped two wells that could produce around 120,000 gallons per day. BRS hooked the wells to field treatment systems called "reverse-osmosis water purification units" (ROWPUs) to give Bondsteel its potable water supply. Wastewater that was generated in the treatment processes was used for dust control and irrigation and other non-potable requirements.

Sewage treatment: While engineers were busy with the initial planning and design, more troops flowed steadily into Camps Bondsteel and Monteith. "By July, we had a problem with sewage disposal," said Guinnane. "The contractor was supposed to build burnout latrines, and the troops had been using them at Monteith. But as soon as the task force brought in porta-pots, it would have had a negative impact on soldiers' morale to go back to the burnout latrines."

With the volume of sewage growing, engineers scouted for local treatment facilities to accept it. There were none—at least none that worked. An abandoned treatment plant near Gnjilane appeared to be the only attempt at



Completed four-pond facultative lagoon

building one in the region. It had not worked for some time and may never have functioned properly.

The locals discharged sewage directly into rivers and streams. But U.S. standards of environmental stewardship demanded a more responsible means of waste disposal for U.S. base camps.

The BRS contract called for eventual setup of a temporary sewage treatment facility, but construction was not planned until most other structures were complete. BCCA engineers looked at interim solution. They decided a lagoon system, which engineer units could quickly build, was the practical, economical approach.

The technical name for the lagoon system is "facultative aerobic and anaerobic treatment." It involves a series of

Medical waste incinerator at Camp Bondsteel



ponds at successively lower elevations. Raw wastewater dumped into the first pond decomposes by naturally occurring microbes' action and solid byproducts settle to the bottom. "Purer" water on top flows over a weir into the next pond, where waste further decomposes and settles. This process continues until the wastewater reaches the last pond, at which point it is clean enough for safe discharge into a stream.

"We built four ponds because we didn't know how quickly SEAhuts would be occupied or how long it would take for BRS to bring in a wastewater treatment system," said Sara Gracey, environmental officer from Baltimore's Engineering Division. "We knew that the graywater from SEAhut latrines would add greatly to the volume being discharged."

CMS had an engineer who had expertise in sewage treatment plant design and construction. CPT Tim Bosetti worked with Gracey and site planners to choose a location for the facility and design the four-pond system. David Hockenberry, construction representative deployed from the Harrisburg Area Office, had the right quality control experience and supervised the ponds' excavation.

Built by two mechanized engineer companies, the lagoon was ready for sewage in late August and handled waste from both base camps.

More waste: Solid waste disposal facilities were also unheard of in Kosovar. The BCCA urgently needed a safe, environmentally sound way to dispose of solid waste from the base—including hazardous medical waste. Since opening in July, the Army field hospital had collected and stored substantial amounts of biowaste, including body parts from Kosovars injured by landmines.

The BRS contract included waste disposal and plans called for incinerators that would destroy most of it at Camp Bondsteel. Fortunately, medical waste incinerators for the camp in Albania, which were never used, arrived in Kosovo and were operating by early September. Refuse that

was not destroyed by the 1,800 F furnace went into specially labeled biohazard containers for transport to a hazardous waste landfill in Germany. The Kosovar hospital in nearby Urosevac also used the facility, which helped reduce environmental hazards for U.S. troops in the area.

For the base camps' garbage, BRS installed a safe non-polluting waste incinerator. The BCCA monitors the facilities' compliance with these requirements.

Debris from construction and demolition cleanup is sent to landfills that engineer units excavated.

BCCA at Camp Monteith

A smaller group of three, led by CPT Lee Snodgrass, set up a BCCA office at Camp Monteith. Snodgrass was assigned to Kosovo from Baltimore's Bay Area Office.

They worked with the Navy Seabee battalion, which had multiple engineer disciplines including heavy equipment operators.

"Because Camp Monteith is in the middle of a city, we had different issues with force protection than is perhaps true at Camp Bondsteel," Snodgrass said. "We dealt with small arms fire, grenades, and car fires in the area on an almost daily basis."

The Monteith BCCA renovated trashed and looted buildings in addition to managing SEAhut construction. Some of the old Serb barracks were converted for other uses. The challenge was finding the materials and local skill base to do these renovations.

Logistics was also an issue for the Monteith BCCA. Most meetings and administrative support were at Camp Bondsteel, which meant numerous trips between camps. The 15-mile trip was complicated by travel restrictions—a minimum two-vehicle convoy with an armed soldier per vehicle. The small BCCA group borrowed tactical vehicles and people from other units to make these trips.

The search for local materials

The lessons from many previous deployments taught



Michael Dean and CPT Lee Snodgrass headed up the BCCA at Monteith

engineers that it is not practical to rely on the local market for construction equipment and materials needed for construction. That was certainly true in Kosovo, which had been at war for 16 months. When U.S. forces first arrived in June, there were almost no businesses of any kind operating.

Military engineers and the contractor brought their own equipment. BRS had identified building material suppliers, mostly from Europe to minimize transportation costs. However, engineers knew that some materials to build the base camps would be better purchased locally—most notably gravel. The amount of gravel for Camp Bondsteel alone was prohibitive.

“We needed 700,000 cubic yards of gravel,” Guinnane said. “That’s enough rock to pave a two-lane road from Kansas City to St. Louis.”

A gravel supplier in Macedonia had a large operation that appeared capable of meeting the demand. But trucks were delayed crossing the border—constantly stalling



BCCA engineers helped locate local gravel supplies

construction. All areas for SEA huts needed several inches of compacted gravel before any other work could proceed. The CMS and BCCA engineers searched for a local gravel source and found a promising company called Glama Quarry near Gnjilane. Former Albanian employees had returned after fleeing the area during the war. “Some men who had been middle managers came back to form a cooperative,” said Moore. “They had all been fired by Serbs around 1990 and hadn’t been back inside the plant.”

Their new business venture had growing pains. They had to refamiliarize themselves with the equipment, much of which was old and in disrepair. And starting a business was difficult for people who had spent most of their lives under a communist system. They struggled with how much to charge for a load of gravel, how to project their cost of doing business, and how to gauge productivity.

“They weren’t comfortable with the business concepts of productivity, risk, and profit,” said Caldwell. “Entering into a commitment to furnish large amounts of material was not easy for them.”

Engineers were able to negotiate a deal with Glama under a Joint Contracting Command contract. The JCC

complements the sustainment services contract by purchasing smaller scale products and services that would detract from BRS’s main missions.

Besides the poorly maintained equipment, Glama struggled with inadequate power and a lack of industrial explosives for blasting rock. Fortunately, the quarry had a supply of previously crushed gravel that allowed work on the camps to progress and soon gravel trucks were soon lined up for miles outside Camp Bondsteel.

Meanwhile, Army engineers helped Glama attack its operating problems. BCCA electrical engineer Ken Boyette recommended solutions to the power supply while the Engineer School dispatched a quarrying expert, SFC William Ralph, to advise on the plant’s operations. The Army provided the proper type and amount of explosives to blast more rock. At one point, the plant’s main rock crusher stopped when a rotor broke. Engineers from Camp Bondsteel traveled to Glama the next day and repaired the part by machining new components and welding, which allowed the quarry to go back into production immediately.

“The engineers’ interaction with Glama Quarry is a success story because of all it achieved,” said Guinnane. “We were able to get the rock we needed while helping the local economy with a jump-start to this business.”

The business of base camp construction

Work requests were used to identify construction needs for all BCCA customers at the base camps—from the command staff to unit representatives. Customers submit them to the Mayor’s cell.

“The Mayor’s cell decided if the need is legitimate and whether it could be met through regular Army channels,” said Boyd.

If the request is valid and cannot be served through normal procurement, it goes through the Joint Acquisition Review Board (JARB) process. The JARB helps distribute work fairly. It determines whether the economics make sense based on standard criteria that are applied to every decision. Board members include the BCCA, a camp command group and the ACO from DCMA.



JCC contracted for smaller jobs, like reseeding the flight landing area

Most local laborers had to be trained to do tasks assigned to them, such as drywalling



BRS hired locals to staff services such as laundry and shower maintenance



Procurement options

The JARB process designates one of four procurement options to do requested work: BRS, JCC, contracts available through Europe District, or troop labor.

The Balkans Sustainment Services contract between BRS and the Corps was intended to be immediately responsive to meet soldiers' life support needs in contingency operations. It includes food service, water supply, showers, mail, vector control, waste handling and other activities needed to sustain the force. Construction is incidental to providing these services. The Corps' Transatlantic Center pioneered base sustainment contracts during earlier contingency operations and continues to support missions in Bosnia, Croatia, Greece, Albania and Hungary. Because of the comprehensive services in the sustainment contract, it is the primary procurement source.

The JCC mainly supplies services that are small, unique and usually available from local sources. An example at Bondsteel is in contracting local farmers to reseed disturbed land to prevent erosion and control dust.

Europe District maintains indefinite delivery-indefinite quantity (IDIQ) contracts that are also used in contingency operations to hire companies specializing in the type of work.

Some projects can be done almost entirely or partly by the engineer troops assigned to the brigade—alone or in partnership with BRS.

BCCA—the next phase

The Kosovo Base Camp construction opened up a whole new chapter in Corps of Engineers support to contingency operations.

“This is the future for the North Atlantic Division and we are preparing our workforce to be ready to support the Army in contingencies any time, anywhere,” said BG Rhoades, NAD Commander. “We had great volunteers from Europe, Baltimore, New York, the Engineering Research and Development Center, Transatlantic Center and several other Corps Districts. Together, they helped change the way the Corps supports the warfighter. Together, they were one Corps' team in support of the Regiment. We look forward to a future where the Army won't consider deploying without the Corps of Engineers to help provide our soldiers the quality of life they deserve.”



BG Stephen Rhoades views progress at Camp Bondsteel with Joe Hollishwander

Managing the logistics support contract

By COL Donald T. Wynn, Commander, Transatlantic Programs Center, U.S. Army Corps of Engineers

On June 12, 1999, U.S. forces moved into Kosovo in support of the NATO peacekeeping operation. That was the beginning of intense operations by the total Engineer Regiment including a Corps contractor, Brown & Root Services (BRS). In less than 90 days, the Regiment accomplished a minor miracle—building enough SEAhuts to house Task Force Falcon through the bitter Balkans winter and establishing an enviable quality of life for the American forces.

BRS, the logistics support contractor, was a significant factor in the success of the Engineer Regiment and Task Force Falcon. This Engineer success, combined with the requisite contracted logistical support, clearly establishes a template for rapidly providing temporary facilities and services in future Operations Other Than War.

BRS erected temporary maintenance structures like this clamshell



BRS's operational scope was large and diverse—encompassing both construction and logistics. Here is a snap shot, by no means all-inclusive, of the contract effort.

From June 12 to Sept. 30, 1999, BRS provided 15,559 trusses and 7,222 sidewalls for SEAhut construction (prefabricated in Macedonia and trucked to the Kosovo camps). They assembled 192 SEAhuts in conjunction with Army and Navy engineers. They also erected two temporary (Tier III tents) dining facilities, 13 helipads, two aviation maintenance clamshells, 12 temporary MKT (mess kitchen trailer) dining facilities, and 37 temporary shower units.

Logistics services, essential to troop morale and mission readiness, included 1,134,182 meals, 55,544,000 gallons of water, and 383,071 gallons of DF2 (diesel fuel). The contractor also serviced 671 portable latrines a total of 31,037 times, collected 89,228 cubic meters of trash, and loaded/offloaded 4,229 containers.

The Corps' Transatlantic Programs Center (TAC) awarded and administers the Balkans Sustainment Contract on behalf of U.S. Army Europe's Deputy Chief of Staff for Logistics (USAREUR DCSLOG),

Three other organizations assist TAC in administration and oversight of the contract: the Defense Contract Management Agency (DCMA), the Defense Contract Audit Agency (DCAA), and the Base Camp Coordinating Agency (BCCA). They share responsibility as follows:

- TAC provides the program management, funds control, and contracting officer oversight.
- DCMA provides the Administrative Contracting Officers (ACOs) in the Balkans, along with quality assurance and property control teams. The teams are coordinated out of DCMA's Southern Europe Headquarters. DCMA also provides an ACO at BRS corporate headquarters in Houston, Texas, to review and approve corporate functions.
- DCAA provides independent verification of all costs incurred by BRS.
- The BCCA performs many of the same functions that are performed by the Director of Public Works at a regular Army installation, plus the BCCA assists the DCMA ACOs in assuring the quality of BRS's construction. Engineers provided by the Corps' North Atlantic Division and supervised by the Corps' Europe District staff the BCCA.

It takes intensive communication and coordination to insure logistical services flow smoothly to the Task Force.

Why contract for logistics services?

Task Force Falcon is just the latest challenge. BRS has provided logistics services in the Balkans region since December 1995 when U.S. forces were committed to the NATO peacekeeping operation in Bosnia. USAREUR DCSLOG decided the logistics support contract was critical to mobilize soldiers a region devastated by war and with out infrastructure. However, the genesis of contracting for logistics services predates Balkans operations by well over a decade.

Since 1992, TAC has administered logistics contracts totaling over \$1.5 billion. This article addresses two major factors:

1. The Army's decision to use a civilian contractor to provide logistics support services to U.S. forces overseas.
2. The considerations, decisions and requirements in managing a contract of this magnitude.

For field commanders, optimal logistics is a robust uniformed force structure in an unconstrained environment. This scenario gives them full control of their logistics assets. But it is unlikely in today's environment of constrained budgets and force structure.

The Army envisioned these constraints in the 1980s, before the fall of the Berlin Wall and the Gulf War, and developed a plan that would use civilian contractors to augment the Army's logistics capability during contingency or wartime operations.

Since then, two factors have forced the Army to rely even more heavily on contracted services than originally envisioned: first, an even greater than anticipated reduction in the force structure; second, the limited size of the



The contractor's earthmoving equipment augmented the 94th Engineer Battalion's machines

military footprint in overseas military operations.

Today, contracted services for life support (food, water, sanitation, and laundry), transportation and maintenance help focus the U.S. forces footprint primarily on combat units.

When the Army developed this plan, it reviewed industry's support of past military operations to determine the potential for continued support. Robust corporations with extensive global networks emerged during the 80s and 90s. These corporations are experienced in independently delivering logistics-type services in a vast spectrum of environments and locations. Their competitive environment demands that they respond rapidly to commercial needs. This flexibility can be extended to support the combat soldiers in military missions around the world.

Logistics support requirements are similar for both large combat operations and operations other than war. Soldiers need food and shelter, transportation to and in the theater of operations, materials procured and delivered, and heavy equipment maintained.

Contracted logistics is a tool for modern field commanders. When they are capped by force structure limits, they can rely on a contractor to hire people and award subcontracts to meet these basic needs. This gives field commanders additional flexibility.

With any military operation, the "Five Ps" prevail: *Prior planning prevents poor performance*. The contractor must be integrated into the planning process, or major disconnects will occur during the military operation when it is time to deliver.

Selecting the appropriate contracting mechanism

When the Corps was asked by the Army to manage the contracting effort for the Logistics Civil Augmentation Program, the first step was to determine the best contractual vehicle for this logistics service support. The Corps determined that a cost contract was the only vehicle flexible and responsive enough to meet the needs of the maneuver commander.

It is instructive to compare a cost contract to a fixed price instrument.

With a fixed price contract, the price is known (fixed) because the scope of work is relatively well detailed with no known pricing contingencies. With this much detail, the contractor assumes the cost and performance risks.

With a cost contract, the exact price is not known because the government cannot completely define the scope of work. The government assumes the cost risk and negotiates an estimated price for the work. The government must pay the contractor until all services are performed or until available funds are expended. However, cost contracts require intensive oversight by the government to timely identify and constrain scope of work creep and cost growth.

In this instance, the government knew it required immediate response from the contractor, but the government could not define the scope of work and cost. The government knew that the variables would be different for each military operation: number of troops, length of deployment, actual services that might be required. Because of these variables, the government knew it could not apply a cookie-cutter approach to providing logistics support for overseas military operations.

Not only did the Corps determine that a cost type contractual vehicle would best suit the needs, but we also determined that we required a self-sufficient contractor with a global presence for the reasons stated earlier. Most critically, this contractor had to have the financial capacity



Water hauled from nearby Gnjilane was stored in large bladders

to operate up to 60 days without reimbursement. Since the contractor must respond immediately to an undefined requirement, there is no time to fully define the scope of work or set up complex financial systems before the start of services. Accordingly, the 60-day window allows time for the cash flow to begin while delivering services immediately to our troops.

The Corps required a self-sufficient contractor for two other reasons:

1. Obviously, since the Corps sought a contractor to

provide this capability, there would be minimal government assistance in executing the contractual requirements.

2. The contractor would need to develop its own lines of communications and supply and maximize the use of commercial seaports and airfields. This becomes very critical when the government's lift capabilities are consumed in moving the maneuver force into the area of operations.

The Corps developed a generic scope of work for contract performance with five major areas of effort: develop



SEAhut construction continued around the clock

facilities, run supply operations, provide life support services, perform maintenance, and provide transportation services.

These deliverables have remained constant in the three logistics services contracts managed by the Transatlantic Programs Center, two of which have supported Balkans operations solely. In all instances, the field commander determines the level of contracted support. Often, as the military footprint reduces during an operation, the contractor will step in to provide the still-needed support services. These may include flight-line operations, firefighting, and reception, staging, and onward movement.

While the scope of work was generic, it was written to provide maximum flexibility in meeting the logistics needs—from the basics that have been mentioned, to other services, such as mortuary and environmental.

Cost type contracts carry a number of implications. The government must reimburse all costs incurred by the contractor during the contract performance, provided certain conditions are met. The government must determine if the cost is reasonable, allocable and allowable. Let me define those terms:

- A cost is **reasonable** if it does not exceed that which a prudent person would incur while conducting a competitive business. What is reasonable depends on a variety of considerations, including whether the cost is recognized as ordinary and necessary for conducting business,

or for performing tasks under the contract. Does the work meet acceptable sound business practices? Does it meet federal and state laws and regulations? Does the work significantly deviate from the contractor's established practices?

- A cost is **allocable** if it is incurred specifically for the contract or if it is necessary to the overall operation of the business.
- A cost is **allowable** if it is reasonable, allocable, meets the terms of the contract and is not specifically unallowable. Some examples of unallowable costs are those incurred for entertainment, fines and penalties, lobbying, and political activities.

The bottom line: Costs must be reasonable, allocable and allowable before the government will reimburse the contractor's expenses.

Another critical component of a cost contract is the fee or profit. Within Defense Department contracting laws, options exist for these fee payments:

- A cost contract may have a base fee no matter how the contractor performs.
- A cost contract may have an incentive fee where the contractor and government have a target cost, and the fee is adjusted up or down, based on how close the contractor is to the target.
- Or a cost contract may have an award fee, which is a subjective fee based on a performance evaluation.

The Corps chose to have a low base fee (one percent) with a higher award fee as an incentive for outstanding performance. Thus, the contractor can earn up to an eight percent award for premium performance. The Corps, in conjunction with the customer (USAREUR DCSLOG), chose the eight percent level to maximize performance.

The contractor is rated three times annually using a numerical scoring system, with evaluation in three areas: cost control and funds management, performance, and flexibility and coordination. Participating in this process are the end users, the ACOs who direct the work in the theater, the contracting officer in the Transatlantic Pro-



All support services were contracted, including this sewing shop



The services contract must have the flexibility to meet unplanned needs and add capability when necessary

grams Center headquarters, and any other customers with significant interaction. The contractor must score above 70 percent to earn any award fee at all.

How the task force commander uses the contract

A major concern of the joint task force commander is command and control of those operational elements critical to mission success. In joint operational doctrine, the JTF commander controls all aspects of operations and the support necessary to ensure success. However, within U.S. military contracting regulations, authority to administer this type of logistics services contract travels through the contracting chain of the contracting organization to the ACOs in the field. Hence, the operational control and contractual authorities for logistics support flow through two separate chains. They intersect in the theater of operations with the ACOs.

In a sense, the ACOs have two masters to serve. They must support the Task Force Commander in mission accomplishment, but they also must administer the contract in accordance with all appropriate laws and regulations. Both maneuver commander and contracting officers need to understand each others' roles and responsibilities and have an integrated process to resolve conflicts in mission requirements and contractual obligations.

Coordination is key. It is critical that the Administrative Contracting Officers communicate directly and frequently with the Task Force Commander so that the contractual capabilities and the contracting officer's authorities are clearly understood by the maneuver forces. With so many participants, there is plenty of room for misunderstanding, especially in the harried days when a deployment is fresh. For that reason, working a logistical support contractor into an exercise scenario is an extremely effective way of educating commanders on the capabilities and restrictions of the logistics support contractor. In those circumstances where the contractor cannot be integrated into exercises, coordination becomes even more critical. Commanders involved with the support services contract

must communicate frequently and fully to mitigate any possible disconnects.

Benefits of logistics support contracting

Is the flexibility that the Army gains with the BRS logistic support contract worth the cost of that contract? The Army has spent more than \$600 million for contracted logistics support in Kosovo. While not an exact comparison, a study by the Logistics Management Institute provides insight, based on its examination of contracted logistics support in the Bosnia operation. The Logistics Management Institute estimated that it would have taken 8,900 support troops to provide the same services that BRS provided with some 6,700 employees for operations in Bosnia. Many of these employees—as in prior operations—were local nationals. Obviously, it is much cheaper to hire local nationals than it is to keep a soldier on the books full-time with all the intended support.

Use of the logistics contract produces other benefits. It helps avoid mobilizing large numbers of National Guard and Reserve units to support these aspects of the deployment missions. In the area of foreign relations, hiring



Good communication and relations between BRS and military engineers made the effort in Kosovo succeed

persons on the local economy provides several spinoffs. First, it immediately starts pumping revenue into the depressed local economies, which in turn provides a favorable impression of the U.S. military presence. Second, with the number of U.S. troops minimized, there is less of a perception that the country is being occupied.

While contracting for logistics support provides several economic and political advantages, some drawbacks exist. The U.S. military recognizes and anticipates that contractors will continue to play a critical role on the battlefield; however, this heavy reliance does not necessarily mean that contracted support will be available in all cases. The Army must maintain a capability for operating without contracted logistics support. In a heavy combat environment, the ability of a contractor to move into and operate within the theater of operations will be severely restricted. Likewise, will the contractor be there in a full-

scale war? How far can we extend the use of contractors in a hostile environment? And at what point does this option become nonviable?

Two other significant considerations merit mention. Contracted logistics support requires intense contract administration because the cost risk is on the U.S. government, and the United States must provide security for the contractor. This is a recurring contentious issue because maneuver commanders do not want to use their limited combat structure to guard the contractor, and it is usually illegal for the contractor to hire its own security.

There are some critical lessons learned from Kosovo that should be applied to subsequent operations. First, it is critical that all agencies and organizations understand their roles, responsibilities, and authorities in the administration of the logistics support contract. While this may be an obvious requirement, because there is no written doctrine about this type of contract, many individuals operate off imperfect knowledge or misperceptions generated by experience with fixed price contracts. When at all possible, these relationships should be established in a working conference prior to the operation. Also, the contracting officers must have considerable experience with cost-type contracts and must understand the fast-paced tempo of contingency operations.

Restrictions in the force structure and the military footprint in many overseas operations make using a logistical support contractor like BRS almost mandatory. All parties gain by this relationship. The United States is able to leverage the global presence and capabilities of large robust corporations and limit the number of forces it must devote to the logistical tail of an operation. The corporations gain a very reliable customer with a healthy workload. The citizens of the United States gain more effective and efficient Armed Forces supporting democracy around the world. ■



Hiring locals to work at the camps not only helps the country's economy, but also builds positive relations

A look at the numbers

In a little more than three months in 1999, the Engineer Regiment converted a bombed-out military base and an empty wheat field into homes away from home for 7,000 soldiers. The sampling of numbers below (all approximate) may help illustrate the effort involved at Camps Bondsteel and Monteith:

- **10,000** people (1,750 Army, Navy and Air Force engineers, about 1,000 BRS employees and more than 7,000 local Kosovar workers)
- built **250** SEAhuts with more than **700,000** square feet of living space, and a host of supporting facilities,
- moving **500,000** cubic yards of earth (at Camp Bondsteel alone),
- consuming more than **6,000,000** board feet of lumber,
- **2,000,000** square feet of plywood,
- **84,000** sheets of drywall,
- **200** tons of nails,
- and **100** miles of electrical cable,
- expending around **10,000,000** manhours
- and **500,000** equipment hours.

Combat heavy in military operations other than war

By CPT Stephanie Arnold, Battalion Adjutant, 94th Engineer Combat Battalion (Heavy)

Military Operations Other Than War—it is no surprise that this “focus on deterring war, resolving conflict, promoting peace, and supporting civil authorities in response to domestic crises” currently consumes a majority of the military’s deployment efforts. The unique capabilities of combat heavy engineers play an essential role in these peacekeeping operations. These engineers can significantly improve a Task Force’s ability to apply the principles of MOOTW.



Adapting their schedule to the summer heat, 94th soldiers worked in shifts during the night and early morning hours

The 94th Engineer Combat Battalion (Heavy) deployed to Kosovo in support of Task Force Falcon to construct Camp Bondsteel. The principles of MOOTW dominated the effort:

- 1) Direct every military operation towards a clearly defined, decisive and attainable **objective**.
- 2) **Unity of effort** in every operation ensures all means are directed to a common purpose.
- 3) **Security** is always important and depends on never permitting hostile factions to acquire a military, political, or informational advantage.
- 4) MOOTW may require **restraint** in order to apply appropriate military capability in support of strategic aims.
- 5) **Perseverance** allows for measured, protracted application of military capability in support of strategic aims.
- 6) Committed forces must sustain the **legitimacy** of the operation and the host government, where applicable.

Principle #1: Objective

“Soldiers in SEAhuts by 1 October.” Just as in 1998 when the 94th sent a company-plus to build SEAhuts in Bosnia-Herzegovina, this charge by the United States Army’s V Corps Commander, LTG Hendrix, was once again the primary reason the battalion deployed to Kosovo. While SEAhuts (Southeast Asian huts) classify only as semi-permanent structures, they still provide soldiers with an exceptionally higher quality of life that is especially needed during the frigid Balkan winters. They each measure 92 by 32 feet, have forced heating and cooling air systems, and are each comprised of five separate living/



The first earthmoving work was to accommodate SEAhut construction

working rooms, separate female and male latrines, and covered external walkways.

The 94th was originally slated to complete 52 of the 160 “truss-ready” SEAhuts—which include placing the footers, floor system, walls and top plates for the roof system. Due to its early completion, the battalion completed additional SEAhuts and more extensive finishing on the buildings.

In addition to this objective, the battalion also deployed to help complete needed force protection and build operational facilities for the Task Force. Operationally, this mission included building administrative SEAhuts, creating the camp’s entire road system, creating motor pools and rock pads for the SEAhut buildings, upgrading the Task Force’s Operational Cell, and completing minor construction missions for the base camp.

The crucial task for the combat heavy engineer is to proactively seek the task force commander’s priorities of work, or the engineer “objective.” The engineers must take this objective, develop a comprehensive plan that meets the time requirements, and receive approval of this plan. To continue forward towards a decisive and attainable endstate without being detrimentally distracted with menial tasks, approval and support must come from the top-down. Depending upon the force structure of the deployed organization, this intent may come directly from the task force commander or from the unit’s direct commander. Regardless of its origin, this information absolutely must be obtained and followed.

Principle #2: Unity of effort

This principle proved most complex and challenging for both the daily and long-term successes of the battalion. All residential buildings and subsequent structures to house a 5,000-soldier force had to be completed within three months of the combat heavy engineers arriving in Kosovo. To expeditiously complete these missions, the battalion continuously worked and coordinated with leaders from the Brown & Root Services Corp., the 1st Infantry Division Engineer Brigade, the brigade’s Construc-

tion Management Section (attached from the 130th Engineer Brigade), and the U.S. Army Corps of Engineers' Base Camp Coordinating Agency (BCCA). Collective meetings, inspections and coordination occurred at least daily among all parties to ensure the unity of all massive, simultaneous construction efforts.

The actual completion of the camp construction required a synchronized team effort between the military and civilian engineers that also capitalized on each one's capabilities and strengths. The 94th was the first construction asset at Camp Bondsteel, and was able to immediately create roads through the enveloping, impassable mud. As the camp's layout was decided, the battalion's twenty-four 621B Scrapers and thirty-three D7G Dozers proved critical as it completed massive cut and fill operations. The Brown & Root Services Corp.'s experienced operators and unique equipment enabled them to complete more quickly many of the final grades on the groundwork, and their multitude of workers allowed them to complete a large portion of the vertical construction. By maintaining a congenial relationship and continuously communicating, the groups jointly completed the work more safely, expeditiously, and with a higher quality than if either worked independently.

Continuous synchronization within the battalion was also critical. This is the first occurrence since 1996, when the battalion deployed to Bosnia-Herzegovina in support of Operation Joint Endeavor, that it has been co-located. In addition, the battalion was supplemented by two additional companies, a maintenance detachment and a firefighting detachment. This unification of almost 900 carpenters, electricians, plumbers, equipment operators, mechanics, logisticians, cooks, firefighters, and administrative personnel originating from four separate CONUS locations (Fort Hood, Fort Leonard Wood, Fort Lewis, and Fort Riley) and five separate OCONUS locations (Vilseck, Grafenwoehr, Hohenfels, Wuerzburg, and Bamberg) appeared seamless—although the efforts to ensure this cannot be understated. Ordinary tasks such as preparing for future missions and organizing maintenance require-

ments became monumental challenges when dealing with six vertical construction, eleven horizontal construction, six organizational maintenance, and four direct support maintenance platoons.

The battalion approached this challenge by prioritizing all missions and allocating its equipment and soldiers based on this priority. For example, one primary mission the battalion completed, "Operation Wolverine Mountain," utilized 72 personnel and 29 pieces of equipment from four separate companies at one time to meet its deadline. Simultaneously, the battalion combined efforts to complete two other important missions—a hardstand for the camp's entire logistical hub and an environmental sewage lagoon—although the personnel and equipment allocated to these missions were substantially less than that for Operation Wolverine Mountain.

The battalion also received frequent construction taskings for missions off base, such as removing rubble or creating passable roads. To prevent any mission from being significantly impacted, the battalion would designate a company in charge of the mission and assign resources from the rest of the battalion. By unifying efforts on the priority projects instead of platoons or companies independently accomplishing missions, the base camp construction remained on schedule and the battalion maximized its capabilities.

Principle #3: Security

There is no substitute for keeping our soldiers safe, especially when operating in a known volatile environment. Along with providing quality of life engineering support, the 94th's other primary function was creating force protection for Camp Bondsteel. The 9th Engineer Combat Battalion initially created a hasty perimeter using its Armored Combat Earthmovers (ACE) and triple-standard concertina wire. The 94th and Brown & Root Services Corp. (BRS) then jointly completed the 2.5-meter high earthen berm around the entire eight-kilometer perimeter, while also removing trees to provide sufficient fields of fire.

For additional security, the battalion worked with the Task Force to build and place nine separate wooden guard



Craftsmen in the 94th gained valuable experience in Kosovo



After Sappers had secured the perimeter at Bondsteel, 94th engineers build an earth berm



Engineers with the 94th took part in a NATO joint project to rebuild a prison at Istok

towers around the perimeter. It also modified the tower design to add a safer and more easily accessible entrance ladder and, for line of sight requirements, placed five of the nine towers on two milvans that were welded together. This extra elevation enabled soldiers to view the area from eighteen feet above the ground as opposed to the traditional eight feet.

Principle #4: Restraint

The battalion's primary missions in Kosovo occurred on the base camp, thereby limiting the soldiers' dealings with the local people. The battalion did conduct frequent convoys and some missions in the local community; to prevent any problems, the battalion proactively focused on Rules of Engagement education and continuous communication when soldiers departed the camp. Before departing the convoy commander verified the route relative to the area mine map, received the latest intelligence and Commander's Critical Incident reports, received a copy of other KFOR radio frequencies along the route, and attained commander's approval to depart. Each soldier carried a Rules of Engagement card, and the battalion conducted routine refresher training. Fortunately, the battalion has not been involved in any confrontational incidents. However, the battalion has established detailed systems to help reduce the likelihood and/or mitigate the severity of any occurrences.

Principle #5: Perseverance

One distinct symbol of an operation's resolve is the establishment of the unit's living and working area. Although the 94th and BRS did not build permanent structures, the grandeur of this base camp on top of a series of hills cannot be misconstrued as a temporary endeavor (especially at night, when it can be seen from miles away). The combined efforts of the battalion and BRS enabled Camp Bondsteel to develop quickly into a camp capable of lasting as long as the mission dictates.

The 94th also joined efforts with British, Canadian and Gurkha forces to rebuild a prison in Istok, Kosovo. With the need to enforce the law and to prosecute offenders, the United Nations decided to repair this destroyed prison complex along the Montenegrin and Serbian border. Through the intense efforts of this multi-national group of engineers, the world community's efforts for sustained peace and order were again reinforced.

Principle #6: Legitimacy

For NATO's presence in Kosovo to succeed, it must win the hearts and minds of both the American and local populations. The 94th's primary contributions in this area were each company's adoption of a local school. Although the battalion was only able to devote relatively minimal time and resources compared to its base camp construction efforts, these interactions and assistance were heartily welcomed by both the school administrators and the children themselves.

Depending on the individual school's needs, the battalion repaired dilapidated floors and ceilings, fixed chairs and desks, and completed basic ground leveling. The battalion's local communities, friends and families have also sent countless boxes of school supplies, toys and clothing, thus involving and educating Americans on the "home front" in our peacekeeping mission.

The battalion and entire engineer community in Kosovo have also actively sought international media attention to highlight and inform others of their efforts. The combat heavy engineers' efforts—including construction missions, civic actions and individual achievements—were repeatedly captured in various forms of media, including the *Wall Street Journal*. The battalion also published a weekly newsletter to highlight its soldiers and their efforts. Distributed directly to both military and civilian friends and family, many copies were also voluntarily forwarded to local community newspapers and churches throughout the United States. As a result, more people realized the positive impact that engineers have in Kosovo daily.

The combat heavy engineers once again displayed their



Families of soldiers deployed in Kosovo welcomed photos and news about life in camp.

flexibility, technical capabilities and tireless efforts as part of the pioneers of Task Force Falcon. They also proved themselves critical in the effort to create lasting peace and public support for MOOTW. Through the combined efforts of all forces in Kosovo—including the combat heavy engineers—NATO is helping bring real change to this war-devastated area. ■

Navy Seabees build Monteith

By *JO3 Maria Blanchard, Staff Writer, NMCB-3*

As NATO peacekeepers rolled into Kosovo last summer, the Seabees of Naval Mobile Construction Battalion-3 were called upon to assist in establishing base camps in the American security sector. Following a five-person advance support team, the main body arrived at Camp Monteith, Gnjilane, Kosovo on June 29.

In one of the largest contingency construction efforts since the Gulf War, NMCB-3, homeported in Port Hueneme, Calif., had 377 Seabees (including 25 Presidential Selective Recalls) and 235 units of Civil Engineer Support Equipment in Kosovo. The battalion's operational commander while assigned to Task Force Falcon was the Commander, Engineer Brigade, First Infantry Division, a U.S. Army Colonel who answered to the Task Force Commander. NMCB-3 was the only engineer battalion at Camp Monteith.

Camp Monteith is a former Serbian Artillery Training Base that suffered heavy damage during the NATO air campaign. When the Army and the Seabees moved in, they found facilities destroyed by NATO's air attacks and utility systems inoperable due to scavenging and vandalism. Within two days of arrival, NMCB-3 personnel restored power and water supplies to critical camp facilities. TOA generators provided additional power to Army and Navy command centers and tent camps.

Additionally within the first two days, the battalion established the first shower point and field galley using TOA equipment, greatly improving the morale of soldiers and Seabees. NMCB-3 and the Army's 1st Battalion, 26th Infantry Regiment partnered in the operation of the field galley and many other camp support functions. This partnership minimized support personnel, freeing Seabees for direct labor and soldiers for the peacekeeping mission.

Providing construction and engineering support at Camp Monteith, the Battalion's primary task was constructing 64 SEAhuts (Davidson style—with five berthing bays and a head facility in each building) by Oct. 1, 1999. These 64 buildings would provide winterized quarters for up to 2,000 U.S. troops.

NMCB-3 established a unique working relationship with the Army Corps of Engineers and the Army contractor, Brown & Root Services Corp. The relationship was



CMDR Kevin Slates headed up the NMCB-3 battalion



NMCB-3 was assigned to Camp Monteith, where they helped build SEAhuts

similar to a joint venture, each exploiting particular areas of expertise. The Army established the scope, prioritized, assigned and funded all tasking. BRS procured construction materials and both BRS and the battalion fielded sizable construction forces that could work independently or together, depending on the task. NMCB-3 performed all projects outside Camp Monteith because of its organic security capability.

The Seabees arrived several weeks before BRS and began construction within days. NMCB-3's combat electricians, plumbers and builders eagerly took on the job of getting water flowing, re-energizing power and making quick repairs to bomb damaged buildings. Once established in Kosovo, BRS hired hundreds of local national workers, but for some time lacked skilled crew leaders. The battalion used task oriented construction management and Seabee leadership to resource-level the workforce, establish crews and lead the construction effort of both Seabees and BRS locally hired labor.

On July 3, 1999, NMCB-3 started earthwork for the 64 SEAhuts, followed by vertical construction on July 26. The battalion shifted to 24-hour operations on Aug. 5. At peak production the project had over 600 military and civilian personnel working around the clock. It involved over 2 million board feet of dimensional lumber, 16,000-plus sheets of plywood, over 15,000 sheets of drywall, 6,700 concrete pedestals and over 200,000 feet of interior electrical cable. With incredible sense of purpose and drive, the Seabees of NMCB-3 led the military engineer-contractor team to successful completion of the SEAhut project on Sept. 30, meeting the Task Force Commander's stated goal, "NO SNOWFLAKES ON SOLDIERS."

In addition to the 64-berthing SEAhuts, the battalion constructed 16 administrative and berthing SEAhuts, eleven guard towers along the camp perimeter, a one-mile long perimeter earth berm, 3,200 feet of HESCO bastion barriers, a bypass road around the town of Gnjilane, 20 acres of hardstand and over 130 minor projects in support of 46 different units. The feats accomplished by NMCB-3 included restoring utilities to a bombed out base and building an Army base camp to support 2000 plus soldiers. The battalion expended 30,367 direct labor mandays and maintained an unprecedented 89-percent equipment

availability in a contingency environment despite the arduous conditions and constant demand on equipment.

Seabee Tiger Team

When NMCB-3 first arrived at Camp Monteith, they formed small working parties to take on the tasks of repairing and building.

Once the battalion began working on the Davidson SEAhuts, they could no longer afford to pull people from the companies for working parties.

Builder Senior Chief William Lopez, who was the operations chief, determined what he would need to form a small, multi-skilled team that could take on a variety of jobs and complete them quickly. He then addressed the company chiefs about forming this “Tiger Team.”

“I explained to the chiefs that prospective team members need to be real go-getters, capable of working independently,” said Lopez.

The Tiger Team consisted of two builders, one steelworker, one utilitiesman and one electrician. The members did not just work within their skills, known as rate in the Navy. According to Lopez, they did a lot of cross-rate training.

He said, “They were a quick response team for small projects. They got stuff done fast.”

The Tiger Team worked directly for NMCB-3’s executive officer. All Navy work requests went to Senior Chief Lopez, who reviewed and validated each one before giving it to the XO.

The team did a lot of work for the Army as well. The Army submitted work requests to Monteith’s Camp Mayor, who validated each request and turned it into NMCB-3’s executive officer. The XO reviewed the work requests and then launched the Tiger Team into action.

Construction Electrician Third Class Daniel Spreng did not know what a Tiger Team was when he was first asked to join. “Once I found out what it was, I was excited and felt fortunate,” he said.

Seabees put out fire

Early one Sunday evening, NMCB-3 got a call for help from U.S. Army security forces in the town of Gnjilane to render firefighting assistance at a burning mosque and nearby Serbian businesses.

Soldiers from the 1st Battalion, 26th Regiment of the Army’s 1st Infantry Division were called to the scene when the local fire fighters would not respond. What the Army needed was water—fast. Equipment Operator Constructionman Christopher King jumped in a pickup truck and followed the three water trucks and 10 Seabees under Army security escort to the scene of the fire.

King said, “There was one building on fire on the left and two burning on the right. It took us about an hour and a half to put out the blazes because they kept re-flashing.”

The primary mission of the Seabees at Camp Monteith, near Gnjilane, is to build a camp for the Army peace keeping force, but they have become well known in the American patrolled security sector of Kosovo for their “Can Do” approach to getting any job done, including



Seabees conducted local patrols and became popular in the community

extinguishing a blaze.

Reservists make a big difference

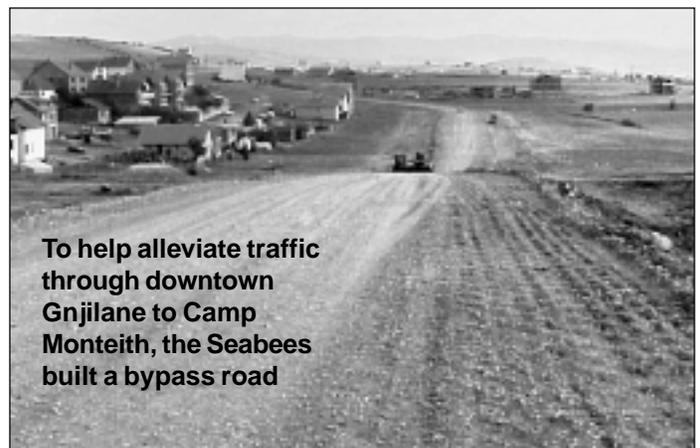
Building 64 Davidson SEAhuts, semi-permanent winterized barracks, by Oct. 1, became a lot easier with the arrival of 18 Presidential Selective Reserve Call-ups.

Not only did they provide about 10 percent more direct labor, they also brought with them a wide assortment of skills. “Most of them were Engineers or General Contractors. They brought a lot of knowledge and skill with them,” said Builder Chief (SCW) Michael Fiasco, D Company operations chief.

Builder Third Class Barry Hollingshod is a prime example of this. He has worked in construction since 1980, on everything from roughing to interior design. “I’ve worked on buildings three times this size,” he said. “Construction is pretty standard.”

The active duty personnel went out of their way to help the reservists settle into the battalion. “I was impressed with the active duty. They were very helpful, making sure we got the things we needed,” said Builder Second Class Doug Smith.

Active or reserve, a Seabee is a Seabee. “We put them to work just like everyone else,” laughed Builder First Class Kenneth Kosman, Delta Company project supervisor. ■



To help alleviate traffic through downtown Gnjilane to Camp Monteith, the Seabees built a bypass road

BCCA Perspectives

Tirana, Albania—Support to the air war

By Torrie McAllister, Public Affairs Officer, and LTC Larry McCallister, Task Force Hawk Base Camp Engineer, Europe District, U.S. Army Corps of Engineers

Early in 1999, NATO tasked a multinational task force to bring a swift end to hostilities committed by the Federal Republic of Yugoslavia against ethnic Albanians in Kosovo.

On March 24, U.S. military forces, acting with their NATO allies, began air strikes against Serbian military targets in the former Yugoslavia. For 78 days, from March to June 1999, the NATO forces engaged in a military operation to end Serbian atrocities in Kosovo.

The air war successfully sought to stop the Serb offensive in Kosovo, forcing withdrawal of Serb troops, allowing the NATO-led international peacekeeping force into Kosovo, and allowing the safe return of Kosovar Albanian refugees.

On April 3, President Clinton signed the order to send V Corps forces with Apache helicopters to Albania to provide support of Operation Allied Force. From April to August 1999, the U.S. Army Corps of Engineers supported Task Force Hawk—first building a base camp with three logistical support areas around the Tirana-Rinas Airport in Albania, then tearing them down and restoring the landscape as U.S. forces moved forward to begin peacekeeping missions in Kosovo. Brown & Root Services Corp. provided primary logistical and construction support services under the Corps' Balkans Sustainment Contract.

Task Force Hawk's primary mission was to provide deep operation and tank killing capabilities for Operation Allied Force. Over 6,200 soldiers deployed with 24 Apaches and 37 other helicopters, ATACMS, 14 M1 tanks, 42 M2/3s and over 10,000 other pieces of equipment.

The original mission was to last 45 days. In reality, base camp support, from initial set up to final close out, took 125 days—four months of intense engineer activity.

Within weeks, the Base Camp Engineer Cell (what the engineering team was called throughout the operation), supported by BRS and the 535th Engineer Company (CSE), built **620** living tents with walkways and wooden floors,

along with support tents (laundry, mess, barber) that also had power; **92,400** square meters of gravel parking lots and pads; **18** kilometers of new or improved drainage ditches; **16.5** kilometers of roads; **9,200** square meters of building remodeling; **4** wash racks; **3** wells; **147** bunkers with milvans and Hesco-bastions; **15** observation towers; and **10** ammunition storage cells.

The base camp engineers at Task Force Hawk met the challenges of setting up in a rapidly developing combat and construction environment, then returning the fields surrounding Tirana Airport to nearly original condition. It is an amazing achievement and an important chapter in the evolution of Corps of Engineers support to the warfighter and management of Base Camp Coordinating Agency activities.



New observation towers were erected atop double-stacked milvans, with staircases replacing ladders and a Hesco-bastion ribbed bunker installed at the base

Lessons learned

Get engineer troops in early. Push engineer troop construction assets into the flow early on all contingency deployments. While the original mission was to last only 30 to 60 days with minimal infrastructure construction, early use of troop construction units would have allowed greater camp preparation before the bulk of forces arrived. Also, a mix of soldier and contractor assets is ideal, giving the base camp engineer more flexibility to respond to task force requirements.

Don't drive where you plan to sleep. Rapid deployment and limited bivouac areas on the Tirana airbase made adequate site selection and preparation impossible before the units arrived. The sites for the logistics support areas were very flat and poorly drained. Without a tentative master plan, road network or drainage, the troops moved in with equipment and drove at random in heavy rains. LSA 1 quickly became mired in mud, which could not drain due to positioning of tents and vehicles. As a result, units in LSA 1 and 3 set up mostly in random order, causing restricted and congested use of the terrain. The final location of most units in LSA 1 fell within just 100 meters of the Tirana runway. LSA 2 was better. It was occupied after a plan was laid out with future expansion in mind. Vehicle traffic was restricted to existing or proposed roads, so mud and drainage problems were greatly reduced and follow-on construction was orderly.

Master plan before maneuver. Have a tentative master plan for terrain usage in place before the troops hit the ground. If units must occupy terrain before there is a master plan, minimize vehicular traffic and keep it to identifiable roads or trails. Once drainage is damaged it permanently affects quality of life. The Base Camp Engineer team needs at least one experienced master planner, two qualified surveyors and two CADD operators on the ground early.

BRS and the 535th Engineer Company built 620 living tents with support facilities in a few weeks



Order and stockpile material early. The pace and quality of construction is directly related to the local supply of quality aggregate and lumber. Identify a local supply for various sizes and quality very early in the deployment. Decide on adequate storage space and a reliable distribution system (BRS contract or troop unit hauling) before the first truckload of material is delivered on site.

Deploy BCCA teams. Deploy and rotate the BCCA as a team, with 60 days minimum time on station. This lesson was applied in Kosovo, where the Corps of Engineers deployed Baltimore District as a BCCA team for four months. In Albania, Base Camp Engineer Cell staffing was ad hoc. People were assigned after requirements arose and few stayed longer than a month. This turbulence increased the challenges of a fluid combat and construction environment. The Kosovo model avoids the delays the BCCA faced in Albania while staffing requests were approved and qualified civilians were identified and deployed. Such a model—with approved requirements and functions—should be approved for future contingencies. The structure should be flexible enough to allow additions and deletions based on mission requirements, but ultimately the decision for manning should rest with the BCCA chief and Task Force Engineer.

Critical supplies. Set up the BCCA team to be operational as soon as it hits the ground with a “start-up” package of computers, printers, AutoCAD, vehicles, office supplies, handheld radios, TeleEngineering and a small portable generator. Tents and cots would be beneficial. Have this equipment containerized and ready for shipping with the first units. Modify the Balkans Sustainment Contract to let the contractor support the engineer team with office equipment and supplies.

Environmental baseline survey. Conduct an environmental baseline survey on the ground—before or in conjunction with troop deployment—to document environmental and health hazards and real estate conditions at the time of occupation. Include photographs as well as soil and water samplings. This process will save immense time and cost during base closure.

Base camp closure. Once the Kosovo peace agreement was finalized, the engineer mission shifted to closure of the base camp in close coordination with the redeploying units to include UN forces collocated with Task Force Hawk, the

Albanian Air Force, and the Tirana-Rinas Airport Authorities. Force protection of workers and safeguarding of supplies and equipment were paramount. Engineer tasks and timelines for base closure activities were coordinated with the 7th Corps Support Group and integrated into timelines to containerize and ship supplies and ammunition back to the European Central Region.

Once the CSG finished, the engineers and BRS had only 40 days to complete the tear-down. Critical tasks included lease terminations and restoration payments, hazardous material removal and disposal, removal of force protection barriers, and removal of all base camp facilities except those we took over from the Albanians.

The most time consuming and demanding was removal of equipment and usable material and disposition of hazardous material. At the height of demobilization, convoys moved 40 to 50 truckloads of waste a day to landfills and hauled pre-made wooden floors, walkways, new and used lumber, Hesco-Bastions, and other Class IV material to Camp Able Sentry in Macedonia for use by U.S. forces deploying into Kosovo.

Units received an area clearance checklist to understand their responsibilities and provide written documentation of compliance. The BCCA team conducted pre-inspections with the units so they clearly understood their cleanup mission.

The U.S. forces and host nation must meet early to identify critical base closure requirements. The results must be documented and signed. This smoothes the effort and establishes a written requirements document. Local authorities can make written requests for construction or supplies. The U.S. Forces can accept these but cannot agree to comply, either verbally or in writing. This must be a government-to-government agreement, not an engineer agreement.

Any structure left in country after contingency operations must be properly documented and approved through the command group. Abandonment is a legitimate option under AR 735-5, but must be identified early. Several damaged and unserviceable milvan towers and bunkers were left in place because they were uneconomical to remove and ship. This was coordinated with the Albanian Air Force and civil airport authorities.

The Base Camp Coordinating Activity plays a vital role in preparing the battlefield in modern military contingencies. In Balkans contingencies—from Bosnia to Kosovo—the U.S. Army Corps of Engineers role in base camp management has evolved with experience. In Albania, the Corps’ base camp engineers gave the deploying forces professionally planned infrastructure and facilities in a fluid environment under austere conditions. Camp construction was rapidly executed and efficiently resourced. To optimize effectiveness, the BCCA must engage as early as possible. Engineers must work closely with operation planners to develop a site master plan ahead of the deployment, then hit the ground running with the first troop flow—adequately staffed and resourced. “First in, last out” is the rallying cry for all base camp engineers. ■

The Corps' initial entry team— "One regiment from the start"

By MAJ Leon F. Parrott, Executive Officer, Europe District,
U.S. Army Corps of Engineers

I recently had an opportunity that few military engineer officers ever get to experience—serving as the Base Camp Coordinating Agency (BCCA) chief for the initial entry force supporting a Combat Brigade augmented with Combat Heavy and Navy Seabee assets in Kosovo.

It was tremendous to see the full spectrum of the Engineer Regiment in operation simultaneously. As combat engineers cleared the way, civilian engineers were providing technical support, developing scopes of work for construction, and developing master plans for camps supporting future contingencies.

The initial entry BCCA for Task Force Falcon (TFF) consisted of an operations officer, a civil engineer, a structural engineer, two environmental engineers, an electrical engineer and a three-person real estate team.

The BCCA could have never deployed without the full support of the Task Force Engineer Brigade. The Brigade requested the BCCA support early in the entry plan development and set aside spaces for the team on their manifests. As future missions are planned, the TF must have the initial BCCA team as early as possible in the troop flow in order to provide the quality engineering support our forces need to be successful. This allowed the BCCA to arrive in Kosovo before 90 percent of the main Engineer and Maneuver force.



The Corps BCCA tent was among the first pitched by a team forward-deployed from Europe District in June of 1999.

With the BCCA in theater so early, we were able to accomplish two of our initial missions with ease. The first was to document existing real estate conditions prior to American Forces occupation and modification of property. With no established government in the region, this documentation was necessary to pay dispensation to the rightful property owners when ownership is established, and to mitigate potential claims.

The second mission is the Base Line Environmental Assessment of potential sites American Forces will occupy. Escorted by combat engineer squads to sites identified by

TFF, the BCCA team of environmental engineers conducted an initial assessment of environmental hazards to the force. This assessment was based on photo documentation, limited soil, air and water sampling, and evaluation of hazards adjacent to the site.

In conjunction with these missions, the team's structural engineer was occupied with evaluations of bridges along the future Main Supply Routes (MSR) and potential structures to be occupied by our forces.

The civil engineer was responsible for establishment of a good working relationship with the Service and Support Contractor (Brown & Root Services) and the Administrative Contracting Officer (ACO). The BCCA could only direct work through the ACO and an outstanding working relationship is required to seamlessly support the TF. Additionally, the



A baseline environmental assessment was completed at this initial stage of Camp Bondsteel's development—if the U.S. presence in Kosovo ends, the site will be returned as closely as possible to its baseline state

civil engineer established the work request process for the TF and implemented the Joint Acquisition Review Board. The JARB is the process of reviewing proposed construction and services, determining if they are necessary, and determining an acquisition strategy.

The electrical engineer was responsible for determining existing utilities infrastructure in the country and future utilities needed to support the force. This task was dangerous in that NATO forces had not fully secured the region.

It was up to the operations officer to arrange for the team's life support as they deployed with no organic sustainment equipment.

The team also began work on master plans for future base camps that might be needed, including scopes of work for SEAhuts, airfields and a number of support facilities.

All members of the team had to be versatile, as they had numerous additional duties outside their primary mission: property book holder, field ordering officer, mechanic, transportation coordinator and—increasingly important—videoteleconferencing (VTC) specialist.

Our VTC capability was one of the keys to such a small number of people being able to delivery such a large number of products to the TF. Armed with suitcase-size units that we could take and operate anywhere, we had access to the full range of U.S. Army Corps of Engineers expertise through TeleEngineering.

In a few intense weeks of effort, we established a good working relationship with the TF, the TF Engineer, the ACO and the contractor, set up the JARB and work request process, and arranged for required support such as translators, lodging and transportation. We handed over these products to the BCCA upon their arrival:

- Initial environmental baseline assessments
- Existing real estate conditions report
- Initial utilities studies
- Initial structural assessment
- Initial master plan with rough scopes of work ■



Among the BCCA's first orders of business was selecting interpreters, such as Niam Preniqi (left, conferring with surveyor Andy Walter)

Engineering matters!

By LTC Patrick Guinnane, Deputy District Commander, and Lloyd Caldwell, Chief, Construction Branch, Baltimore District, U.S. Army Corps of Engineers

The U.S. Army Engineer Regiment enjoyed one of its best moments in history with the construction of two base camps in Kosovo last year. The “regiment” involved an integrated team of military engineers, civilians from the U.S. Army Corps of Engineers (USACE), and contractors. The success of this diverse team has set a precedent for all contingency operations and will serve as a model in future engineer command and control decisions.



Among the engineers' huge challenges was to build an aircraft landing facility to handle more than 50 helicopters

Thanks to the phenomenal engineering work in Kosovo, U.S. troops had warm, dry housing over the cold Balkan winter. Engineering as a profession is truly at its finest when it has such a dramatic impact on quality of life.

The engineering challenge was enormous, starting with the Task Force Commander's goal of having all troops quartered in buildings by Oct. 1—before the advent of the harsh Balkan winter. Other priorities included constructing a fully capable airfield to accept an aviation battalion by Sept. 15; building facilities for units from Ukraine and the United Arab Emirates; and providing engineers and craftsmen for route upgrades and a wide variety of special missions both within and outside the American Sector.

Base camp design

The planners in February and March had understood the probable size of the U.S. force and identified the probable scope of base camps and life support required from BRS. The USAREUR Red Book described the scope and type of facilities authorized in the Bosnian operation, and that book became the central planning document, treated as doctrine, for determining the scope of individual projects. But there were no designs for the camps or for the facilities. BRS was obliged to follow good commercial practice, but the absence of codified standards remained a constant technical challenge.

The first engineer function on the ground was to design the base camps plan, to accommodate the topography at Bondsteel, to determine that the Yugoslav facilities at Monteith were recoverable and for what purposes. The professional effort was little different than for any new town development, except that it was real time and fast

Earthmoving began immediately after the first surveys were completed



tracked. The surveyors were establishing horizontal and vertical controls as the engineer battalion earthmovers began construction of the access road network (over 10 kilometers alone on Bondsteel) and the combat engineers fortified the perimeter.

Early establishment of the functional layout was critical: living areas, common areas, operational and industrial areas, an aviation field, a refueling area, ammo holding area, Class IV and contractor laydown areas, equipment hardstands, and infrastructure locations.

The integration or appropriate separation of these diverse activities required skilled judgment. The early decisions fixed the broad parameters for these areas, but the development of details of the camps master plans evolved continuously. The Urban Planning training of a graduate architect within the BCCA/CMC team was invaluable in setting the footprint of the camps. Combined with a professional civil engineer, an engineer technician and surveyors in the BCCA, who designed the cuts and fills and grades, the basic plans were quickly established and were inviolate.

The gas line workaround

At Camp Bondsteel an old abandoned cross-country underground gas line was known to cross the footprint of the base camp. The alignment and depth on data used by the original planners indicated that the line would pose no conflict to construction of the camp. However, as is often the case, the earthmovers found the line on the area fondly known as Wolverine Mountain.

The schedule barely permitted any flexibility in construction in that area, but the line now posed a direct conflict to the design of the living area planned there, and its unknown character posed a potential threat to security. While the earthmovers diverted their work to maintain progress, the BCCA engineers redesigned the facilities layout and elevations to avoid the alignment of the line. Subsequently the engineers researched the line, developed a scope of work, and the Europe District hired a specialty contractor to purge and terminate the line at the camp boundaries.

SEAhuts

The basic building for the camps is a remarkably versatile temporary structure called a SEAhut. The SEAhut (from Southeast Asia Hut) originated from the Vietnam conflict when the Army developed a shelter to be easily fabricated by troops from standard dimension lumber and plywood.

The original design has evolved through the Bosnian experience to a structure called the Davidson SEAhut which measures 32 by 92 feet in floor area with five living bays and a latrine bay, an exterior 5-foot walkway, and a trussed roof system.

The Red Book identifies the SEAhut as the basic temporary building for contingency operations in the USAREUR Area of Responsibility, but no Technical Manual was known to describe the building. Questions arose regarding the structural adequacy of joint connections and the live load assumptions (e.g. snow load) for the 42 feet (32 feet span) trusses. No engineering design for the trusses could be located, and quality assurance inspections in the field revealed variations in construction of the truss panel point connections.

Utilizing the BCCA staff experience and structural engineers in the Baltimore and Europe Districts, the BCCA was able to provide structural engineering guidance to the contractor and troops fabricating the trusses to ensure adequacy of the connections for the expected loading conditions in the Balkans.



The BCCA provided guidance for building safe trusses that would handle the design load

Similarly, no engineering design or analysis existed for large dimension (length and height) lumber trusses fabricated for the dining facilities, which could seat upwards of 800 troops. Questions of good practice for intermediate support locations at the bottom chord and unsupported length of interior members were similarly addressed to assure that the structural design of these temporary, contingency facilities afforded reasonable compliance to life safety standards for human habitation.

Existing structures

In addition to new buildings, assessment of the adequacy of floors and roofs in existing buildings occupied

by U.S. forces was a recurring engineering requirement. Most large buildings in the Sector were of concrete frame construction, of varying quality and condition. Observation posts with timber and sandbagged protection, added significant point loads and appropriate concern for the vigilant unit commanders.



Engineers like Jim Moore (inspecting roof for structural integrity) often went off-camp to consult on facilities where soldiers were housed



SGT Navarro guards the water treatment plant where Albanians feared Serb attacks

Water supply

The immediate, essential requirement for life sustaining water was another priority. The engineer objective was two self-sufficient base camps. Camp Monteith, on the former Yugoslavian Army installation, had access to water from the distribution system serving Gnjilane. Fed from a mountain reservoir some 20 kilometers distant, the water was of sufficient quality and quantity both to serve Camp Monteith and to be trucked by BRS to Camp Bondsteel until a well system could be established there. The water was used for nonpotable purposes and treated by Army Reverse Osmosis Process Water Purification Units (ROWPUs) for uses such as showers and cooking.

However, adequate water producing strata at Bondsteel proved elusive. With first a well drilling expert on its team, then a professional geologist, supplemented by



Jim Moore and Lloyd Caldwell inspect the water treatment plant at Prilepnica

hydrogeologists from Europe District and USAREUR, the quest for water at Bondsteel paid dividends through five months of drilling and 13 wells, of which three were good producers. The first Macedonian driller with his antiquated Russian drill rig struggled with the rock hardness and depths beyond 100 meters. Later BRS mobilized a modern rig through a Greek firm, and the drilling pace and well production improved.

Documentation and maps of hydrogeology in the area were nonexistent, most public documents having been taken or destroyed by the retreating forces. In a sharing of information that became common among the NATO engineer elements, a large-scale geological map was obtained by the BCCA from the German engineers (who in a few months returned seeking consultation for their own well drilling efforts). Under those circumstances, it was the experience and professional judgment of the engineers in partnership with BRS that ultimately located the wells capable of producing the 400,000 gallons per day required at Camp Bondsteel.

Concurrently, the Monteith source, coupled with increased demand in Gnjilane from restoration of some societal normalcy, began to show signs of strain. Finding another source of water became critical. The BCCA engineers examined the Gnjilane reservoir and treatment plant with BRS and found the water level to be dangerously low. Also, there was serious structural degradation in the plant's clear wells.

In one memorable incident, the water stopped flowing at Monteith. The BCCA engineers at Monteith arranged a reconnaissance to the reservoir with a unit of Seabees and armed troops from the 82nd Airborne Division and found it abandoned by the ethnic Albanian operators. (They had feared that Serbian operatives would attack at its remote location.) The soldiers recovered those operators and established an outpost at the reservoir to ensure its operation.

The BCCA and BRS, searching for other water sources, discovered an inoperative industrial well field east of Gnjilane and began assessment for returning it to service. BRS drilled a high producing well near its logistics center in the city of Urosevac, approximately 20 kilometers northwest of Bondsteel. This well, while not solving the need for self-sufficiency at Bondsteel, provided a backup and confirmed a potential source for the Urosevac commu-

nity. It had apparently never been tapped, due to common reliance on surface water and shallow wells in the area.

Wastewater treatment

The wastewater produced by thousands of troops represented an immediate environmental challenge for Task Force engineers. Their policy was to follow U.S. and western European environmental standards as closely as possible and to avoid environmental degradation in the sector. Aerial and ground searches by BCCA engineers and BRS, and consultation with other NATO engineers, established there were no operable wastewater treatment facilities within the sector or region. BCCA assessment of the one municipal plant in the U.S. Sector at Gnjilane found it to have been abandoned for years, in such a state of decay as to be irreparable. Human waste from the city flowed in open channels around the plant into the natural waterways. While that condition might reflect accepted practice or necessity in the region, U.S. policy dictated otherwise. BRS had placed orders for two packaged treatment plants, but their delivery and installation were not expected for up to eight months.

The BCCA environmental and mechanical engineers, with a Medical Service Corps sanitary engineer attached, rapidly developed a concept and design for facultative lagoons capable of treating the Bondsteel and Monteith wastewater through natural aerobic processes. The 94th Engineer Battalion committed a company to excavate the lagoons. Working around the clock under BCCA supervision, they had the first lagoon and its 800,000-gallon capacity operational in August. The entire 3-million-gallon capacity was complete by the end of the month.

Environmental protection

Environmental protection for an operation the scope of Task Force Falcon was a significant, continuous requirement. USAREUR policies for environmental activities applied to all military operations, and an environmental officer on the BCCA staff represented USAREUR oversight in implementing applicable practices in every unit. Collection of POL and other hazardous wastes generated by the



Environmental engineers ensured waste handling facilities were designed properly

hundreds of armored vehicles, trucks, humvees, construction equipment and generators was a mammoth effort. The BCCA ensured the practices of the units, BRS collected the waste from unit holding points, and the DLS shipped the waste for disposal.

Force protection

One special area of engineering expertise was provided by a force protection engineer on the BCCA staff from the Omaha District—a center of expertise. He designed the camps' perimeters and advised on internal camp measures. He also provided guidance regarding protection of troops in urban areas and developed features to protect from potential terrorist attack. His work resulted in a positive assessment of Task Force Falcon force protection measures from a JSIVA team that visited in October.



Generators provided interim power supplies to SEAhuts prior to connecting to the local electrical grid

Power generation

Modern forces operate on electrical power, and generator sets were an interim source. However, commercial power generation is the preferred longer-term solution for the base camps. The BCCA engineers assisted the DCSENG Facilities Engineer Division in developing a plan with the Kosovo Electrical Utility Company to establish a substation at Bondsteel and to upgrade equipment serving Monteith. BCCA interpreters and engineers shared the task of translating technical language in communication and proposals from the Kosovars, while the engineers also assessed projected loads and distribution systems.

Utilities infrastructure

The complexity and scope of the utility infrastructure for the camps became readily apparent. The camps, although temporary, had all the scope and complexity of small cities. Accordingly, the benefits to long term operational efficiency and costs for the utility distribution systems required specialized, professional modeling and assessment.

Drawing upon another element of the engineer

community, the BCCA obtained the services of the STV Architect/Engineering firm through an existing contract with the Europe District to develop a utilities master plan for the three camps. With technical support from the BCCA, DCSENG and BRS, the STV team produced a viable plan in record time to guide construction of the electrical, water and wastewater systems. On the heels of that accomplishment, their expertise was required to help the BCCA and BRS solve a troublesome, recurring series of outages in electrical gear at Camp Able Sentry that jeopardized camp operations.

Soils and foundations

Geotechnical engineering decisions were fundamental to camp construction. Speed of construction and the absence of operational concrete batch plants in the region dictated the decision for above-grade imported precast foundation pads. The engineers established that buildings would be placed on cut areas with fill areas serving as equipment hardstands. The soil was a highly impervious clay with good bearing capacity. Building precast footings were placed on six inches of crushed stone. Geotextile fabric overlaid with a minimum of 12 inches of crushed stone formed the minimum roadway section. The troops' sheepsfoot rollers were ideal for the soils.

Maintaining the pace of construction was jeopardized early by the necessity to import crushed stone at an average rate of 4,000 cubic meters per day from quarries in Macedonia. The civilian and military engineers worked to restart commercial production at the closed Glama quarry near Camp Monteith. The crushing equipment was in poor condition, the electrical power was unreliable, and the quarry had no explosives.

The regional search for sources of crushed stone identified some other sources of good quality stockpiled stone, but one source of a black stone posed a threat to the camps. The stone was cheap and easy to place, but the BCCA engineers and geologist identified it as an antigorite formation, a soft fragmented rock, not suitable for foundations or base courses and potentially containing asbestos and naturally occurring concentrations of heavy metals. The engineer responsibility and decision, considering both the material properties and the occupational health risk, was to avoid use of the black rock.

The foundation for temporary construction consists of concrete blocks



Balancing competing priorities

Such decisions, as myriad others through the course of developing the camps, balanced the competing interests of quality, progress and cost, and exercised the engineering judgment necessary for support of the Task Force mission. Contingency operations and construction of temporary facilities require acceptance of different standards. In the contingency context, the quality factor was defined as functional, structural, and life-safety criteria. Factors of fit, finish and appearance, normally associated with quality criteria, were wholly subordinate to questions of operability, maintainability and human safety. Commonly accepted building standards were not codified, placing a direct responsibility on the engineers in the field for applying seasoned professional judgment to decisions that affected effort and cost.

Establishing the base camps for Task Force Falcon and supporting the diverse scope of other engineer taskers in theater encompassed a broad range of disciplines. The total engineer regiment of combat engineers, civilian engineers and contractors combined under the leadership of the Task Force Engineer established a potent capability at the service of the Task Force Commander and the soldier to develop the superior quality of life, operational and force protection facilities quickly. The combination was the most robust

LTC Guinnane and BCCA Deputy Lloyd Caldwell tackle an engineering problem



engineering capability in the region.

The foresight of planners that permitted BRS to be prepared, that mobilized the augmented Engineer Brigade with three combat engineer battalions at the beginning, that accessed the breadth of USACE engineering expertise, and that obtained vast quantities of materials—along with the results of that foresight—show the importance of the engineer to the U.S. Army and the nation. Crossing the line from scientific theory to practical application, understanding the whole systemically, and applying concepts of engineering management and partnering pulled the diverse teams together. The participants within the Engineer Brigade understood the importance of engineering in the process.

At the conclusion of the daily Brigade Battle Update Briefing, a new battle cry soon joined those of the engineer units—"Sappers In!"—"Wolverines!"

It was "Engineering Matters!" 🇺🇸

Supporting sustainment

By LTC Ed Voigt, Public Affairs Officer (IMA), Philadelphia District, U.S. Army Corps of Engineers

By the time the Engineer Regiment's first wave had left Kosovo in November, Task Force Falcon had a place where its troops could live and its choppers could land—the mission essentials were covered.

But the work of building the base camps was far from done. Many supporting facilities remained to be built, such as morale, welfare and recreational structures, a new command headquarters, hospital and others.

Missions

“Task Force Falcon as a whole is now in a sustainment mode, but for the Base Camp Construction Agency we are still all about building,” says current BCCA chief LTC Byron Jorns.



Local Kosovars, working under the services contract, prepare to pour concrete for one of 52 helipads at the Bondsteel airfield

“All our base camp construction falls into one of three categories,” say Jorns, who also heads the New York District contingent. “First comes force protection, which at this point is essentially complete. Second are the operational facilities, those that directly support the mission. They are functionally complete, but there is a fair amount that still needs to be taken to the next level, such as replacing 52 landing mats with concrete helipads and constructing a more permanent wastewater treatment plant. Third is what we call the ‘quality of life’ category, mostly AAFES- and MWR-related facilities, many of which are still in progress or will be soon.”

Organization

Enter the second wave, with many different faces but many of the same skills. The lead role of Task Force Falcon Engineer was passed from the 1st Infantry Division Engineer Brigade to its own 82nd Engineer Battalion. The 82nd also took over the sapper missions formerly assigned

to its sister battalion, the 9th. The North Dakota National Guard's 142nd Engineer Combat Battalion (Heavy) supplied its own Construction Management Section to relieve the 130th HHC and its B Company to carry on the horizontal and vertical construction tasks of the 94th. For the Corps of Engineers, a military and civilian team from the New York District followed the Baltimore District. The Seabees' NMCB-1 took over from NCMB-3. Augmenting the force was the 172nd Explosive Ordnance Detachment from Texas and the 467th Engineer Detachment (Firefighting) from Kansas.

As during the initial buildup, the engineers in uniform—the 82nd and 142nd at Camp Bondsteel, the Seabees at Monteith—focus on work best suited to their training and resources. The balance of the workload continues to be carried by Brown & Root Services.

Sapper missions

“Our current engineer force is smaller for this phase, but certainly no less capable,” says LTC Duane Gapinski, Battalion Commander of the 82nd and TFF Engineer. “This operation is a perfect example of how Reserve and Guard units complement the active component.

“The 82nd's sappers are working mostly outside the compound at this point, building battle positions, basic life support facilities and vehicle inspection sites for the 50 or 60 fixed sites around Kosovo where American troops are directly involved in peacekeeping. Plus whatever else may be needed to support maneuver elements—from snow removal to mine detection.”

The Guard delivers

Gapinski speaks highly of what the North Dakota National Guard has contributed to Task Force Falcon. “In the meantime, the 142nd brings tremendous construction knowledge to Camp Bondsteel. Most of these folks are from the same area, even the same town. They know each other, they are used to working together. And most of them have been honing these skills for years in their everyday jobs. So they come here with a cohesiveness and a collective know-how that you just can't create overnight.”

One of the 142nd's projects will house veterinary medicine operations, ranging from food inspection to care of military police K-9 dogs (as well as local strays that wander into the camp). “Most of what we do is nothing fancy, just your basic, earthmoving, carpentry, electrical, plumbing, ductwork, drywall and so forth,” says Battalion S-3 MAJ Les Noehre, who manages the CMS. “Projects like this are right down our alley.”

Not surprisingly, they have been called upon more than once for snow removal. “The lessons learned from winters back home are really helping out here with clearing snow from the main supply routes in Kosovo,” says SGT Todd Christie, a heavy equipment operator with B Company's Horizontal Platoon. “Some seemed to think a road grader would not be any good at clearing snow and were not sure how to mix the sand and salt to melt the ice, but these were both issues we have dealt with previously.”

B Company's current project list includes a distance



Carpenters from B Company, 142nd Engineer Combat Battalion (Heavy), North Dakota National Guard, work on the veterinary medicine facility



BRS workers finish out the inside of an ATCO building to be used for vehicle maintenance



building block is a scissors-like assembly of corrugated stainless steel panels that open up to form both walls and ceilings that can sit on a concrete pad. It gives you a shell that you can fill with almost anything.” Most of them are being built as maintenance or storage sheds, but one already houses part of the base command complex and another will become a gymnasium and fitness center.

Using standard solutions

“The lagoons met an immediate need, but we still felt a more permanent solution was called for,” says the Corps’ Jim Lodge, who serves as TFF Environmental Officer. “We approached it just as we would in the states, which meant a wastewater treatment plant at each base camp.”

Instead of sewage being pumped out and hauled to the lagoons by truck, it will now flow entirely underground through a series of pipes that converge at the primary lift

learning center, the north chapel and shopette, and perimeter roadwork.

The civilian perspective

For the Corps’ civilian engineers, many of whom are accustomed to civil works projects that can span more than a decade, the highly compressed construction schedules offer quite a contrast. One of those engineers is the New York District’s Dave Campbell. “Back in the states, most of my workload is made up of coastal and environmental projects that have to go through an extensive planning and engineering process. Yet here, having done the design for 52 helipads, I will have overseen their construction and seen most of them in full operation within my six-month rotation.”

Project engineer Bob Gerrits extols the virtues of the ATCO building, a modular, prefabricated stainless steel configuration being used for a wide variety of base camp facilities where the SEAhut template does not work. He says, “The ATCO design is both fast and flexible. Its



The Bondsteel wastewater treatment plant is based on a standard design

station. From there, it will all be pumped uphill to the plant.

"The treatment plant itself takes advantage of a natural process," says Lodge, "providing plenty of oxygen for microbes to do the work of breaking down organic waste so that it can be safely returned to the environment."

Effluent from each camp is cycled through a primary screening tank, pressure equalization tank, synthetic media trickling filters, extended aeration tanks and clarification tanks, where the remaining solids are settled out and then sent through a sludge press for subsequent delivery to an offsite facility. The liquid is chemically treated in chlorine contact tanks and discharged back into a local stream.

The Camp Bondsteel plant can treat up to 600,000 gallons a day, the Monteith plant about half that amount.

TeleEngineering at work

The Corps' Ed Sim, engineering chief for the BCCA, offers another example of the tremendous value added by



The BCCA sent out bridge recon teams to remote locations

TeleEngineering.

"BRS, being based in Texas and with much of their experience in warmer climates, was having difficulty getting concrete to cure properly during the coldest parts of December and January," says Sim. "When they approached us with the problem, we worked together on both a preferred solution."

"From the start, I had an advantage as a native of upstate New York and as the area engineer at Fort Drum, where cold weather is a way of life. But to take full advantage of the Corps' vast resources, we turned to the Cold Regions Research and Engineering Laboratory for their expertise. Not only did they confirm that our solution was sound, but they also helped us identify field-expedient fallback options in case the right materials were not available.

"For instance, one way to improve concrete's freeze-thaw resistance is to increase the amount of entrained air, since the surface tension in the air bubbles makes the concrete stronger. BRS ended up obtaining the admixture

that would accomplish that, but our 'Plan B' would have been to use ordinary laundry detergent. Also, calcium chloride—commonly used to fill heavy equipment tires—could have been used as a water reducer to make the concrete less likely to freeze. Neither of these measures is optimal. But they certainly would have worked for at least five years, which is the design life of these base camps."

Sims adds, "The equipment we use for these transatlantic video-teleconferences is portable, so TeleEngineering can even go out to the field. We have been able run live feeds at remote bridge sites in the Balkans back to engineers at the Construction Engineering Research Laboratory in Illinois, getting their input on structural analysis. It is a very powerful tool."

One-man BCCA

The New York District's contingent includes one member whose work is entirely outside Kosovo. Doug Leite, project manager at Camp Able Sentry in Macedonia, functions as a one-man BCCA at Task Force FALCON's key link to the outside world.

"Here I wear many hats," says Leite. "Contracting officer's representative, designer, project engineer, administrator, you name it." While the scale of the engineer effort is smaller than at the other two base camps, there is still a considerable variety of projects underway.

"We just completed the MWR center and are currently building a post office, mortuary, chapel and two field surgical facilities," says Leite.

Much of his effort now is invested in design of the Blace Border Project, which will place a new customs inspection terminal about 10 kilometers south of the Macedonia-Kosovo border to alleviate horrendous congestion problems due to truck traffic. Because of diplomatic implications, this high-visibility project is being coordinated at the embassy level.

Working closely with Leite is MAJ Wayne Johnson of the 33rd Area Support Group, Illinois National Guard, whose role is analogous to that of the Construction Management Section at Bondsteel. There is no engineer troop involvement, however; Brown & Root Services provides all the construction labor.

The leverage factor

The significance of what has been accomplished in less than a year at Camps Bondsteel and Monteith has everything to do with the unique nature of military engineering in the United States. No other nation has such closely integrated active and reserve forces with their complementary construction and sapper skills; the vast resources of a mostly civilian Corps of Engineers with its own research labs; or such a strong working relationship with highly capable architect-engineer and construction firms in the private sector. ■

Steady-state base camp management

By Torrie McAllister, Public Affairs Officer, Europe District, U.S. Army Corps of Engineers

While Task Force Falcon prepares for its first anniversary supporting the U.S. contingent of NATO's Operation Joint Guardian, the Base Camp Coordinating Activity (BCCA) is transitioning to a steady-state operation.

The U.S. Army Corps of Engineers' Europe District is hiring a team of nine semi-permanent civilian engineers to provide base engineering support to the Task Force Engineer. The new civilians are being recruited for one-year assignments at Camps Bondsteel, Monteith and Able Sentry. Their job is to handle roles similar to that of a stateside Directorate of Public Works—identifying, planning and prioritizing projects, preparing scopes of work and providing quality assurance for contractor operations.

“Engineering 9-1-1”

Europe District already has steady-state teams at the BCCAs that support the U.S. Forces in Bosnia and Hungary.

When a BCCA needs additional engineering support, Europe District has engineers on call for temporary duty.

“If the Task Force Engineer needs a hydrologist, a force protection expert, or someone to do route reconnaissance, or a drainage design, Europe District tries to offer the engineer equivalent of dialing 9-1-1,” said Scott Lowdermilk, Europe District Chief of Operations and Readiness. His office handles in-theater coordination with U.S. Army Europe and U.S. European Command.

“We hustle to recruit volunteers with the right skills and send them TDY,” Lowdermilk said. “Sometimes they need someone for a few days; sometimes it is for a few months. We try to be economical ... send a few experts to the field who can use TeleEngineering to consult with others back home,” he said. “For missions like planning, we gather data downrange, then return to Europe District to develop the product. Our goal is to be fast, flexible and deliver results.”

The Europe District Operations and Readiness staff coordinates all USACE support to the Task Force with the U.S. Army Europe Deputy Chief of Staff Engineer, which assigns engineer missions. Operations Officer John Daneker works with North Atlantic Division to find and deploy the people with the right talent for the mission. If Europe District does not have people available, North Atlantic Division turns to the rest of the Corps.

For example, the Mississippi Valley Division supplied technical expertise to the BCCA at Camp Bondsteel in the form of structural engineers Kent Hokens (St. Paul District) and Wen Tsau (Rock Island District). Another key contributor was the Philadelphia District's Bill McNelis, who provided critical computer support at both the Europe District EOC and Camp Bondsteel, and also helped Europe District and the Corps' Engineer Research and Development Center set up TeleEngineering equipment.



Temporary housing enabled fast response to soldiers' needs in Kosovo

Europe District's Operations and Readiness Center also coordinates logistics, information management, payroll, human resources and other staff support the BCCA staff does not have readily available in Kosovo.

Fielding the team

The Kosovo steady-state team replaces the temporary duty teams that were fielded by North Atlantic Division to help set up and organize the base camps during the first year.

The steady state BCCA will have 13 positions—three military officers and 10 civilians. The administrative clerk is a local hire and the Corps provides the rest.

The office includes these positions:

- BCCA Chief, LTC
- Deputy Chief, GS-13
- Operations Officer, CPT
- Plans Officer, CPT
- Electrical engineer, GS-12
- Civil engineer, GS-12
- Mechanical engineer, GS-12
- Facility engineer, GS-12
- Two construction representatives, GS-12
- Environmental protection specialist, GS-12
- CADD operator, GS-12

The Corps' peacekeeping role

Supporting peacekeepers is a new role of the Corps of Engineers. It began in Bosnia with the first base camp planning and real estate acquisition for Operations Joint Guard and has evolved ever since.

“Peacekeeping operations in the Balkans present a whole new challenge for the Army engineers,” said COL Michael Pelkey, Europe District commander. “We have to quickly set up temporary base camps that are capable of supporting our modern, high-tech force. They have to be durable enough to handle several years of rugged use if necessary. When the last troops leave, we have to take them down swiftly and restore the land to its previous condition.

“Over the last four years, the Corps of Engineers has

helped build and take down 23 base camps in Bosnia and Albania, leaving behind only some of the gravel and asphalt.”

Leveraging resources

U.S. Army Europe draws on every engineer resource available. It is a total team effort that involves troop unit construction, contractor support and the Army Reserves and National Guard to get the job done.

“Our Corps of Engineers civilians, which include local nationals, volunteer to deploy with the force to provide engineering management and technical support,” Pelkey said. “They are part of an expanded role we see emerging on how the Corps supports the warfighter in contingency operations.”

North Atlantic Division, which coordinates all USACE support to the European Command area of operations, has refined its regional business process to respond more effectively to military contingency operations. NAD



The initial volunteer team from Baltimore was replaced by a New York District team in December

also has operational control over the Corps’ Transatlantic Program Center, which administers the Balkans Sustainment Contract that provides Brown & Root’s contract services for base operations.

The lead district concept

In earlier Balkans operations, the call went out to volunteers from across the Corps. Now NAD Commander BG Stephen Rhoades tasks a lead district to deploy. The lead district commander assembles a team that can deploy together and stay together. They already know each other and have well-established work relationships, providing cohesiveness in the early stages of an operation.

Europe District had the lead for support to Task Force Guardian in Albania, where the U.S. stationed its forces during the air campaign to stop ethnic cleansing by the Bosnian Serbs. “Within 120 days, we put up Tier 2 tents, shower facilities, dining hall and tactical infrastructure for 5,500 soldiers, then tore down and shipped them on to Kosovo,” said LTC Larry McCallister, who was Chief

Engineer for the Task Force. “When we finished, we left behind an empty field.”

When the troops moved forward into Kosovo, Baltimore District was tapped to send three military officers and 25 civilians for a six-month assignment to set up the Base Camps at Bondsteel, Monteith and Able Sentry. Baltimore mobilized with the first combat and combat heavy engineer units and the Navy Construction Battalions (Seabees). Together they spent six months preparing base camps for the 7,000 U.S. peacekeepers.

At Thanksgiving, New York District took over with three military and 11 civilians and began sustaining base operations and make improvements through the winter.

Now they are preparing to pass the torch to Europe District and the semi-permanent civilian force.

Deploying district teams improves unit cohesion and helps the Corps hit the ground running.

“I want all the districts in North Atlantic Division to have experience supporting warfighters,” said Rhoades. “We are enhancing the Corps’ rapid response capability throughout European Command.” ■

Pinch hitting—a Corps team fills in

By LTC Ed Voigt, Public Affairs Officer (IMA), Philadelphia District, U.S. Army Corps of Engineers

For two months at the end of 1999, the BCCA’s entire Construction Management Section was staffed by three Corps of Engineers civilians.

Peter Hugh from the New England District and Ray Richardson and Jim Rogy from the Philadelphia District took on this responsibility in November and December, bridging the gap between the 130th Engineer Brigade HHC’s return to Germany and the arrival of the 142nd Engineer Combat Battalion (Heavy) from the North Dakota



A small but critical team provided interim BCCA management to keep soldiers productive

National Guard.

They oversaw the activities of two remaining engineer companies at Camp Bondsteel, the 568th Combat Support Equipment Company and A Company of the 864th Engineer Battalion, and of the Seabees at Camp Monteith. Their job was to ensure these units were provided with construction projects that enhanced their training skills while contributed to the Task Force Falcon mission requirements. The projects were done either solely by the units or in a joint effort with BRS.

According to Hugh, the division of labor among the three was fairly straightforward. "Jim was the construction



Philadelphia's Jim Rogy constituted one-third of the BCCA's Construction Management Section during November and December 1999

inspector responsible for safety and quality assurance, Ray took care of all the logistics management, and I handled the overall construction project management."

"The scope of the operation was massive," said Rogy. "Even though all the troops were housed for the winter, there were still a lot of roads and supporting facilities to be built. I still marvel at how much was accomplished in such a short period."

Aside from monitoring all construction activities to make sure they were carried out safely and according to sound engineering practice, they also handled procurement, storage and distribution of the materials needed to build these projects.

Major projects already underway during their tour were the Basic Load Ammunition Holding Area, perimeter road and berm relocation, construction of nine guard towers, design and construction of the South Access Road (Route Goat) and Gnjilane Bypass (Route STAG), the vehicle wash racks and fueling point, and miscellaneous checkpoint and outpost improvements. New projects included SEAhut-based chapels at Bondsteel and Monteith, ATCO building interiors and main supply route (Route HAWK) bypasses.

"Being an Army Reservist myself, I enjoyed the opportunity to take part in a purely military operation," said Richardson, who normally works for the Corps as a hydrographic survey technician on the Delaware River. "Likewise for Jim, who served in Vietnam."

"But the greatest reward in all this was knowing that you were actually helping someone," he said. "Just being around the Kosovar people, you could almost feel their loss. Yet much of the work we managed was carried out by these same people, earning money with which to rebuild their broken world." ■

TeleEngineering support to NATO operations

By Marnah Wohken, Public Affairs Specialist, Europe District, U.S. Army Corps of Engineers

The U.S. Army Corps of Engineers is providing engineering support to NATO operations in the Balkans through TeleEngineering. Developed by the Corps' Engineering Research and Development Center (ERDC) in Vicksburg, Miss., TeleEngineering provides fast, efficient, real-time engineering support from technical experts anywhere in the Corps.

How it works

Through a network of secure, sophisticated, high-frequency satellite communications systems, TeleEngineering allows engineers to collect data down-range and participate in real-time video consultations—tapping into the Corps' broad range of expertise.



Europe District's Dwight Dukes (l) and Rusty Mizelle review environmental survey data at the Task Force Operations Center in Albania

Europe District Information Management Specialist Erich Schuette deployed in April to assist with the initial setup of the TeleEngineering equipment at the Task Force Operations Center in Albania.

"TeleEngineering is a portable door to the Corps," said Schuette. "Once everything is hooked up, it's as easy as making a phone call. For example, we were asked to look at a building in Albania to see if it was structurally sound. We videotaped the building and transmitted the video back to Europe District's Emergency Operations Center through our secure satellite communications link. At that point, Corps structural engineers who were at Europe District waiting to deploy to Albania, viewed the video. Through video teleconferencing, they were able to make their calculations and recommendations."

"We were also asked to make recommendations on improving an existing guard tower," added Schuette. "Video of the tower in Albania was taken and sent to us via

our satellite link. At that point, Force Protection Specialist Ed Conrath from the Corps' Omaha District used his previous experience in Bosnia to make recommendations on improving the structure."

How it helps

LTC Larry McCallister, Europe District Contract Construction Agent Team I, Commander, is forward deployed to Albania, and works with TeleEngineering regularly.

"The biggest benefit to TeleEngineering is the ability to conduct secure communications with several people at one time," he said. "I've been doing video teleconferences with USACE Headquarters and North Atlantic Division on the proposed future of the base here in Albania. During the teleconference, we had the charts on the wall so everyone could look at them at the same time, and we were able to zoom in and concentrate on a specific area if there were questions. It's so much easier than trying to explain everything over the telephone."

"We can also do a lot of preliminary analysis of the area without incurring the cost and time of deploying a lot of people," added McCallister. "Experts from the Corps view the video tapes we send them from where they are, do the analysis, and send the information back to us here in Albania."

Europe District Environmental Engineer Rusty Mizelle was also one of the first to deploy to Albania to conduct environmental surveys and develop a hazardous waste safety plan at the request of U.S. Army, Europe.

"TeleEngineering is a great way to transfer a large amount of data very quickly," said Mizelle. "U.S. Army, Europe needed a record of existing environmental conditions, so I conducted an Environmental Baseline Survey when I first arrived. Once I completed the survey, I had a lot of data to transfer—over 100 pages of information with digital photos. Because of TeleEngineering, I was able to send that data back to Europe District very quickly and it worked very well. In the past, we hand-carried the information which took a lot of valuable time."

"We're also working on a safety plan for the disposal of hazardous wastes that affect our soldiers downrange," he added. "With TeleEngineering, we're able to close the

gap with the guys on the ground and our safety office at Europe District. As we develop the plan, we are having meetings via video teleconference, which has many benefits. It's just like talking to someone face-to-face as opposed to a phone call or e-mail, and all of the players are involved at the same time."

Where it is used

Currently, communication via TeleEngineering is only available from point-to-point, but it is growing, according to ERDC electrical engineers Bryan Register and Jeff Powell. Both of them worked on the initial setup of the equipment.

"Soon we'll have a multi-point bridge capability so we can connect up to eight sites at one time," said Register. "We'll be able to hold video teleconferences simultaneously—from Albania, to Europe District, to North Atlantic Division, to the Office of the Deputy Chief of Staff Engineer in Heidelberg. We are also looking at making the equipment in the field much more portable, and more compact. It's growing and changing daily."

Powell added that live feeds from Albania are currently available on video teleconference, which allows for even more flexibility. "Right now we can do live feeds with a cable hookup to the camcorder," he said. "In the near future, we'll be able to conduct live feeds with audio, without any type of cable hookup. That allows the experts back at the Corps to actually tell the person running the camera to move in closer on a particular area."

The Corps has been working on the TeleEngineering concept for over a year, according to Leonard Huskey, a physical scientist from ERDC who played a big role in the development of TeleEngineering. He said, "We've been working with the TeleEngineering concept for about a year, putting together a communications system that provides the entire spectrum of Corps of Engineers expertise to deployed military and civilian engineers downrange. TeleEngineering gives the deployed engineer access to that expertise—whether from the North Atlantic Division, the Pacific Ocean Division, the Southwest Division or the South Atlantic Division. With TeleEngineering, the Corps can offer a greater number of people to work the engineering challenge." ■



Kosovo countryside, U.S. sector

Reports from the Engineer Units

Technical support from the Topo Team

From the onset of the conflict in Kosovo, various elements of the U.S. Army Corps of Engineers were called upon to support ground forces in their peacekeeping efforts. The support provided by elements of the Engineer Research and Development Center's Topographic Engineering Center (TEC) in Alexandria, Va., played a significant role in preparing soldiers for their task.

TEC's primary mission is to provide the warfighter with a superior knowledge of the battlefield, while supporting the Nation's civil and environmental initiatives through research, development and the application of expertise in the topographic and related sciences.

The organization's history is rich with examples of its support to military and civilian operations during times of crisis and conflicts worldwide—Operations Desert Shield and Desert Storm, Joint Endeavor and Sombbrero Grande and Hurricanes Marilyn, Opal and Andrew.

Well-drilling efforts

In June 1999, TEC's expertise in hydroanalysis was called into play when Europe District forward personnel in Macedonia contacted the organization's Hydrologic Analysis Branch with a request for a site-specific hydrogeologic evaluation to support well drilling, which was about to commence at Camp Bondsteel in Kosovo. This same-day analysis was responsible for at least two successful wells being completed.

In addition, TEC team members successfully filled a request from the U.S. Army, Europe Deputy Chief of Staff, Engineering for hydrologic evaluations of the well-drilling potential for 10 possible base camps within 36 hours of receipt.

Terrain Database Modeling and Simulation

In January 2000, the Data Base Production Team out of TEC's Operations Division received a requirement from the TRADOC Analysis Center in Fort Leavenworth, Kan., to build a new S1000 simulation terrain database over the Kosovo region. The Kosovo area of interest covers approximately 150 by 200 kilometers. Work to build the database involved utilization of the S1000 tool-kit software to incorporate standard National Imagery and Mapping Agency (NIMA) data and other available sources. An initial data pre-processing phase was completed at TEC and delivered to Zel Technologies, Inc., for completion of the database. TEC engineers created an integrated Triangu-

lar Irregular Network (iTIN) surface model. Features in the database included, as a minimum, transportation, vegetation, surface drainage and urban representations. Base camps and storage areas were built into the database along with other cultural models that were added. Initially the database, which was successfully delivered to the user in ModSAF format on March 17, was built to support an April 2000 exercise requirement for the Mounted Maneuver Battle Lab at Fort Knox, Ky.

Currently, talks are under way with Fort Rucker's Aviation Test Facility to enhance the database with additional features. It is planned that this database will then be used by helicopter pilots training at their site for rotation into Kosovo.

Engineering Route Studies

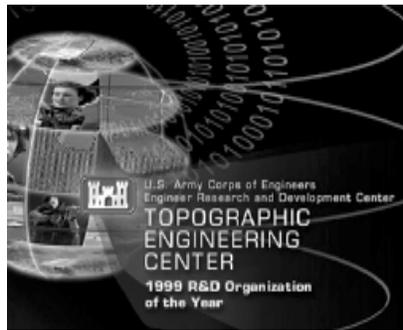
Additional TEC support included Engineering Route Studies, a graphic product designed to provide country-scale terrain, climate and natural disaster data in conjunction with current route conditions. The graphic highlights such items as areas of potential flooding, steep grades,

switchbacks, potential choke points and areas of landslides. Road information includes distances in kilometers, surface type and road classification (such as expressway or single lane). The studies allowed military planners to assess the overall impact of terrain and climate for major routes within Albania, the Southern Balkans and Northern Serbia.

Urban Tactical Planner

With the TEC-developed Urban Tactical Planner (UTP), soldiers had the capability to plan and visualize military operations in areas of Pristina. A digital terrain analysis product, the UTP can provide a three-dimensional fly-through within and around a city; classify buildings according to type, function and characteristics; measure critical features, such as distance between buildings, building heights and street widths; and show multiple city perspectives including aerial and ground views, stills and video daytime and night, and oblique and vertical shots. Significant information pertaining to bridges, streams, roads, key buildings, airfields, religious shrines and other landmarks also can be obtained. While other products furnish some of this information, none fully exploits geographic information system technology as well as this remarkable tool.

TEC has a proven track record of support to the nation and the world. Our research and development efforts have been there and will continue to be there for battlefield commanders and their soldiers. ■



130th Engineer Brigade designs Bondsteel

By Sheila Garrett, Public Affairs Specialist, 414th Base Support Battalion

Soldiers from the 130th Engineer Brigade, Headquarters and Headquarters Company, left their mark on the latest military base camp in Kosovo. Camp Bondsteel, which is now the main base camp for the U.S. Army, was designed by the soldiers in the Construction Management Section and civilian engineers from the Army Corps of Engineers and constructed by the 94th Engineer Battalion of Vilseck together with Brown & Root Services.

Camp Bondsteel began as 750 acres of wheat

"It was 750 acres of wheat fields and rolling hills," said SGT Darren Rouse, 130th Engineer Brigade, Construction Management Section. "In our first three weeks of deployment we did not know what our mission would be, so we supported other engineers at Task Force Hawk in Albania as they prepared for what was to come," Rouse said. "At this time the situation in Yugoslavia had not been settled, so all of us had to be prepared for anything. Then the order came down for CMS to further deploy into the U.S. sector of Kosovo. Our mission was to design a base camp."

Bondsteel is the largest base camp since Vietnam

Plans for the base camp included more than 50 helicopter pads, an ammunition storage site, housing called SEAhuts, sewage, motor pools, a gym, dining facilities, a command post building, a hospital, a fuel point and wash point, guard towers, and an 8-foot-tall perimeter berm of dirt with a fence surrounding the massive plot of

land. It would turn out to be the largest base camp constructed since the Vietnam war.

"We were one of the first units to pull in to the site. We set up tents and began to survey the land and make plans to begin the layout and design of the camp," said Rouse.

"It was an amazing task and I learned a great deal," said SPC Julius Spencer, a surveyor in CMS, HHC, 130th Engineer Brigade. "When I first saw the site I thought, 'Okay, how are we going to do this,'" Spencer said. "Three hundred sixty degrees of wheat fields was all we could see. It took 10 to 14 days to get moved in and survey the lay of the land. We were very careful to make sure the design was proper," Spencer explained. "We used the Automated Integrated Surveying Instrument to survey the land and then we input all of this information into the computer and it generated an accurate topographical layout," Spencer said.

Once the lay of the land was mapped out, design of the base camp began. The engineers worked with representatives familiar with each area to be constructed. For instance, pilots and airfield operators gave requirements for the helipads, safety representatives made sure safety features were in place, and the engineers worked on quality control following Army standards and directives so construction workers could accurately carry out the plans.

"When people would bring their requirements for the air strip, motor pool, et cetera, I would write the construction directives with enough detail for the construction workers to begin the task of building. There were slight alterations that were made to our design, but they were mainly for safety reasons," said SSG Gregory Kastner, CMS, HHC, 130th Engineer Brigade, construction inspector.

"Myself and SSG Austria, CMS' other construction inspector, would inspect the work performed by the construction units for problems, making sure that directives we gave them were followed," Kastner said.



Aerial photos of Camps Bondsteel and Monteith reflect the care taken in planning and layout by the 130th Engineer Brigade's Construction Management Section

5,000 soldiers can live comfortably at Bondsteel

Camp Bondsteel has the capability of housing around 5,000 soldiers, a multitude of ground transport vehicles and approximately 54 helicopters.

A unique feature of the base camp includes the housing units called SEAhuts. Originally built for the Southeast Asian climate, SEAhuts provide more comfortable accommodations than the typical field grade tent.

“The SEAhuts were constructed by Brown & Root and the 94th Engineers,” said Rouse. “They were easy to construct, but provide good living conditions for soldiers.”

The buildings feature heating and cooling units, above ground construction complete with plywood floors, and low noise intrusion because the unit is completely sealed with 16 by 32 feet of living space.

Camp Bondsteel offers excellent quality of life

The soldiers from the 130th Engineer Brigade were deployed for approximately five months. In this time, they managed to design a layout that is fully functional and sustains a high quality of life for deployed soldiers. “The quality of life that soldiers will experience will make it much easier to carry out their mission—that is what our job is all about,” Rouse stated.

As the 1st Armored Division prepares to send soldiers to Camp Bondsteel, they can feel assured that many of the luxuries of home will be within reach. “In

addition to the nice living conditions, there are MWR facilities and a nice-sized PX,” Rouse said.

It is hard to believe how much teamwork, time and dedication it took to construct this Camp Bondsteel, but eight engineers in Hanau say it was a very rewarding experience. “I think engineers have an advantage over soldiers in other fields because we get to see the project from the beginning all the way to the completed product,” Rouse said. ■



Incoming units in December found many quality facilities, like this large PX with a wide variety of products



Combat heavy—Building base camps and beyond

By CPT Stephanie Arnold, Public Affairs Officer, 94th Engineer Combat Battalion (Heavy)

The 94th Engineer Combat Battalion (Heavy) deployed to Kosovo in support of Task Force Falcon to help create Camp Bondsteel, the primary base camp in the U.S. sector of Kosovo. Normally headquartered in Vilseck, Germany, the 94th is comprised of two line companies, a combat support equipment company, and a headquarters and support company. Augmenting the battalion for this deployment were the 568th Combat Support Equipment Company, Alpha Company of the 864th Engineer Combat Battalion (Heavy), the 562nd and 521st Firefighting Detachments and the 317th Maintenance Support Company. This brought its total strength to almost 900.



For Task Force Falcon, the battalion was attached to the 1st Infantry Division Engineer Brigade. The 130th Engineer Brigade (the battalion's organic brigade) also deployed its construction management section to provide managerial oversight, material acquisition assistance and daily guidance to military construction engineers.

The deployment

As U.S. Army Europe's only construction asset, the 94th has trained and prepared for both a peacekeeping and peace-enforcing deployment to Kosovo since late 1998. The 535th Engineer Company (CSE) deployed to Albania in support of Task Force Hawk in April 1999 to serve as V Corps' only military engineering asset for force protection and quality-of-life engineering support. In June, the battalion deployed an 80-person advance party to Albania. It was prepared to establish split operations in northern Albania while the battalion constructed the primary east-west main supply route into Kosovo. Five days after the advance party arrived in Albania, the political agreement was settled and the battalion was rerouted to Kosovo. Within two weeks, battalion surveyors and primary logistical leaders arrived at Camp Bondsteel to prepare for the rest of the battalion and other converging Kosovo Forces (KFOR) units.

Unlike in Albania, where land use was determined on a first-come, first-served basis, the 94th's surveyors were able to plan how the land should be used. Working with the 130th Engineer Brigade's construction management section, they completed a topographic survey of the 750-acre area in 10 days. Using this data, the two construction cells determined interim locations for arriving units and the best layout for the base camp. The Base Camp Coordinating Agency (BCCA), comprised of both military and civilian engineers from the U.S. Army Corps of Engineers, designed the base camp while the battalion focused on internal project designs and quality assurance.

Protecting and housing the force

The 94th's mission in Kosovo was threefold: provide force-protection support, provide quality-of-life support and build operational facilities for Task Force Falcon.

Force protection: Effective force protection is critical for Camp Bondsteel, which is situated on a series of rolling hills with nearby woods on several boundaries. After the 9th Engineer Battalion used its armored combat earthmovers to create a hasty perimeter, the 94th and Brown & Root Services Corp. jointly completed a 2.5-meter-high earthen berm around the entire perimeter. They removed trees to allow sufficient fields of fire and built nine wooden guard towers around the perimeter.



Force protection work by the 94th included building these firing points along Bondsteel's perimeter

Due to soil, pests and line-of-sight requirements, the battalion modified the towers by placing each on a concrete pad and adding safer and more accessible entrance ladders. Five of the nine towers were placed on two MILVANS welded together for greater visibility. The added elevation enables soldiers to view the area from 18 feet aboveground rather than from the usual 8 feet.

Quality of life: As when B Company deployed to Bosnia-Herzegovina in 1998, the battalion's main construction effort was life-support areas for the base camp. Because of the camp's topography and population, it would eventually have two independently serviced life-support areas, with semipermanent wooden buildings known as SEAhuts (Southeast Asian huts). The battalion also created SOCCE huts (modified for the Special Operations Command and Control Element) and officer/senior noncommissioned

officer SEA huts that have 10 rooms with separate latrines for each pair of rooms.

Operational facilities: The 94th created Camp Bondsteel's road system, which was critical to alleviate blinding dust storms and enable mobility when torrential rains made the clay soil impassable. They built the hardstand for the camp's hospital, created the road to the military and civilian materials yard, and laid a double-base surface of bitumen on the camp's eastern access road. The battalion upgraded the main briefing room and other areas throughout Task Force FALCON's command center. It also created a storage system for confiscated weapons and built floors for 200 tents, so soldiers would be out of the mud while SEA huts were being constructed.



The road network expanded and changed with changing camp plans

Moving mountains

To create life-support areas, the 94th transformed the topography of Camp Bondsteel to maximize use of the ground. The primary earthmoving mission, dubbed Operation Wolverine Mountain after the battalion's mascot, required moving and redistributing more than 150,000 cubic meters of earth—equivalent to the area of one football field, 100 feet deep. To save time, the battalion lowered the two major hills in Camp Bondsteel and simultaneously filled the large ravine between them.

Combining the efforts of all four organic companies, the battalion worked two shifts totaling 20 hours per day. At times twelve 621B scrapers, eight D7G dozers, three 130G graders, and six vibratory and sheepsfoot compactors operated on the hills. In 30 days, the battalion widened the life-support areas, created areas for the camp's wash rack and more than half the motor pools, and built a foundation for the northern access road.

Simultaneously, the battalion created the hardstand for the American logistical supply support activity. This 600-by-160-meter area, which required 70,000 cubic meters of earthen cut-and-fill operations, would eventually include a chapel, a morale and welfare tent, the Army and Air Force Exchange Service, and a barbershop. Equipment

Road construction included drainage structures to prevent erosion



and operators from nine Wolverine platoons worked around the clock to complete the project.

Another earthmoving effort on Camp Bondsteel was the sewage lagoon. This project was environmentally critical since there were no sewage-treatment plants in Kosovo, and local people (including those serving military units) emptied raw sewage into streams. The lagoon was a technically challenging mission that required all four of the 200-by-300-meter areas to have depth deviations from final design grade of no more than 3 inches. Led by the 535th and 568th Engineer Companies (CSE), the first area completed has a maximum deviation of only two inches across its entire 60,000-square-meter area.

Other missions

The 94th also led a variety of missions outside the camp's perimeter, allowing soldiers to provide vital assistance to the area. Each of the six companies sponsored an elementary or secondary school that was destroyed in the war or had been allowed to deteriorate. Completing basic repairs to the schools and building fundamental necessities, such as desks and chairs, provided a better learning environment for Kosovar children.

The battalion conducted reconnaissance of routes and bypasses throughout the American sector of Kosovo. It also repaired a former Yugoslavian military weapons range, which enabled KFOR units to maintain weapons qualification. The battalion repaired roads damaged during the NATO air campaign against the Serbian military and removed debris and dozens of destroyed cars from school yards and neighborhoods. Although not the unit's major effort, the soldiers enjoyed honing their skills while helping to improve these people's lives.

Lessons learned

After a unit completes a major exercise or deployment, several critical themes usually emerge. The 94th's deployment to Kosovo provided lessons that may help other units prepare for similar missions.

1. Focus on continuous teamwork. This theme had many facets for the 94th—from intrabattalion efforts, to units added to the battalion, to different headquarters, to efforts with civilian contractors. Because the battalion was

geographically dispersed among three German cities (Vilseck, Grafenwoehr, and Hohenfels), the companies' interactions in Germany usually are limited. Most missions there are completed by just one unit. In fact, the unit has not had a battalion formation in more than a year. During this deployment, almost every project has been completed by at least two companies, and several involved as many as four companies under the leadership of one platoon. Assimilation has been seamless because leaders at all levels stress teamwork.

Of the units that augmented the 94th, only the 317th deployed with the battalion from Germany. Firefighters joined the battalion when the 535th CSE relocated from Albania to Kosovo, and the other companies arrived in early August. By establishing communication and working relationships before their arrivals, units quickly and smoothly joined the battalion's efforts to complete base camp construction.



The battalion prepared living tents and working areas for units before their arrival, and incoming units received official welcome briefs that explained unit and camp policies. Leaders and soldiers in augmenting units were included in updates, professional development classes, morale-building events, and visitor briefs the same as those in organic companies. Except for different unit patches, the battalion merely enlarged into an enormous, cohesive unit.

A key factor in the battalion's successful construction management and resourcing was the inclusion of the construction management section from the 130th Engineer Brigade. Because it was familiar with the battalion and had experience with brigade-level management, the section provided needed guidance and liaison support between the construction engineers and the normally mechanized-focused divisional engineer brigade. This kept the teamwork focused at all levels within the units.

The battalion worked with Brown & Root Services Corp. throughout this deployment. The military's flexibility and stability, coupled with the contractor's experience and virtually unlimited work force, enabled Camp Bondsteel to be completed before winter.

For instance, the battalion had surveyors at the camp within two weeks after the peace agreement was signed,



Electricians and other craftsmen had many opportunities to hone their skills

and equipment and operators followed 10 days later. The battalion was tasked to complete major cut-and-fill operations with its twenty-four 621B scrapers, whereas Brown & Root's experienced operators focused on the finishing work. The battalion's plumbers and electricians, who get little experience in Germany, worked with their professionally licensed Brown & Root counterparts to gain valuable experience.

An amiable relationship helps the military and civilian workforce reach our end state of protecting the force and improving quality of life for deployed soldiers.

2. Deploy with a robust advance party. The deployment to Kosovo was a unique experience for the entire task force, because a significant number of personnel and supplies for this deployment were already in Albania for Task Force Hawk. Despite the difficulties of relocating from Albania to Kosovo, the effort was minimal compared to deploying from Germany.

The importance of the engineer force deploying early cannot be stressed enough. The advance party of battalion surveyors, construction planners and section leaders provided Task Force Falcon with immediate and long-term planning capabilities. Unfortunately, the 94th's entry was delayed because of the task force's intricate management of arriving units. Many major units had skeleton crews on the ground with areas already established. As the battalion and construction maintenance section developed an initial camp layout, the task force moved several units. Others remained in place, and some still slow construction efforts, because they must relocate from nonresidential areas in the final base camp footprint.

Once in country, the 94th quickly began to create the perimeter berm, build primary camp roads and construct tent floors with equipment and carpentry tool kits already in Albania. Since it may take 30 to 45 days for Brown & Root to get basic necessities into an area, engineer assets must have priority of movement to ensure that soldiers remain safe and healthy and have at least a basic standard of living. To capitalize on the military's quick responsiveness, initial entry assets must take engineer equipment, tools and (when possible) construction materials such as lumber and nails.

3. Conduct deliberate planning and management. Leaders and soldiers of combat heavy units often are pressured to conduct minimal planning and execute their plan immediately. Engineer leaders must balance project initiation speed with the need for deliberate planning. They must learn the commanding officer's engineering intent and priorities, develop a logical and detailed plan of execution, and have the commander bless the plan. Direction and support from the start of the mission will prevent duplicated efforts and attempts by lower-ranking commanders to divert the unit's efforts.

Designing and planning construction missions for nine earthmoving platoons, six vertical platoons, an equipment platoon, and an asphalt and concrete platoon is quite a feat for one battalion staff. The battalion capitalized on the experience of several junior officers, each of whom had deployed at least once to the Balkans, and senior noncommissioned officers in its construction cell to prepare for future missions while providing guidance on current missions. The battalion received exceptional help from both the 130th Engineer Brigade construction management section and the Corps of Engineers' Base Camp Construction Agency (BCCA) in planning and designing many missions.



The asphalt and concrete platoon tested locally produced bitumen

With everyone working together, projects met required technical specifications and execution time lines. The battalion combined all 21 surveyors, including those from the attached companies, to conduct topographical surveys, stake the designs and provide quality assurance. One surveying team remained on the site of each earthmoving project to ensure quality control.

Engineer leaders must allow time to conduct quality maintenance when the unit is in a continuous construction operation. Garrison-like "motor stables" or maintenance stand-down days are unacceptable when construction deadlines are imminent. One successful method used on the battalion's 24-hour earthmoving sites was to perform daily shift maintenance. Maintenance crews stayed on site to perform emergency repairs. Projects stopped for an hour after each shift so the crew could lubricate and refuel

equipment and perform preventive maintenance checks and services. Even with dust, heat and continuous operations, the equipment maintained exceptional operational readiness rates throughout the mission.

4. Bring additional equipment based on the mission. Fortunately, the 94th knew its general scope of work before departing Germany. If a unit has not been to a particular area, it should gather as much information as possible before deploying. This intelligence will pay enormous dividends throughout the mission.

Based on previous deployments with similar missions, the battalion ordered two small Bobcat skid-steer loaders. These small, versatile pieces of equipment have attachments ranging from street sweepers to forklifts to buckets of various sizes and uses. Although the battalion has larger equipment for each of these functions, the Bobcat has been extremely helpful when operating near SEAhuts and in other built-up areas.

With six companies operating over a 750-acre area, continuous communication among the battalion and company leaders was critical. The commanders, battalion command team and battalion S3 used hand-held Motorola radios with military nonsecure frequencies. Each company had internal communication among platoon leaders and company operations, and when the battalion assumed perimeter guard duties, soldiers in each tower used hand-held radios. This ability to immediately contact either subordinates or superiors for guidance, material deliveries or command information ensured that the battalion continued to progress.

After leasing pneumatic nail guns in Bosnia-Herzegovina in 1998, the battalion ordered 14 nail guns and a million nails for the deployment to Kosovo. This equipment speeds production and helps maintain unit morale.

The 94th dealt directly with Caterpillar for repair and replacement parts for many pieces of engineer equipment. Through the director of military and governmental sales, the battalion requested that a Caterpillar representative live and work with them in Kosovo. Within six weeks of the 94th's entry, a representative arrived with a satellite cellular telephone and Caterpillar proprietary software that enabled the battalion to order parts despite an unreliable telephone system. Parts were shipped directly through the dealer in Belgium to speed their arrival and reduce equipment down time.

Making a Lasting Difference

The 94th Engineer Battalion's deployment to Kosovo was a great learning experience for both leaders and soldiers. Soldiers departed with greatly enhanced skills that only missions of this type can provide. Leaders at all levels left better prepared to handle future contingencies, as well as myriad construction and leadership challenges.

This deployment clearly demonstrated how engineers of all types and backgrounds can work together to achieve a common goal. The battalion departed Kosovo knowing it had made a difference in this area for years to come. ■

Operation Wolverine Mountain—initial earthwork

2LT Margaret Warner and SFC Timothy McGhee, Alpha Company, 94th Engineer Combat Battalion (Heavy)

Dust, heat and mountains of tall grass were all that greeted the 94th Engineer Combat Battalion (Heavy) when the main body arrived at Camp Bondsteel, Kosovo, on July 3, 1999.

The 94th deployed to Camp Bondsteel, Kosovo, in early July in support of the 2nd Brigade Combat Team of the 1st Infantry Division as part of Task Force Falcon. Within 24 hours of arriving at Camp Bondsteel, Alpha Company's Earthmoving Platoon received the mission to clear and level the two central hilltops that dominated the base camp to create a level area for construction of a Life Support Area (LSA) to support an entire brigade combat team. This LSA ultimately included SEAhuts (Southeast Asian huts) for soldiers' living quarters, as well as operation centers, motor pools and dining and athletic facilities.



Engineers from the 94th cut over 150,000 cubic meters of earth in just 30 days

The initial horizontal earthwork foundation was the highest priority Army engineer project in the theater because the first phase of SEAhut construction was scheduled to be completed by Oct. 1 in order to move soldiers into heated, permanent structures before the Balkan winter set in. This massive earthmoving project was completed ahead of schedule. The success of this project can be attributed to three specific areas: the strong leadership of junior non-commissioned officers, an intense focus on maintenance, and the spirit of teamwork across the entire battalion.

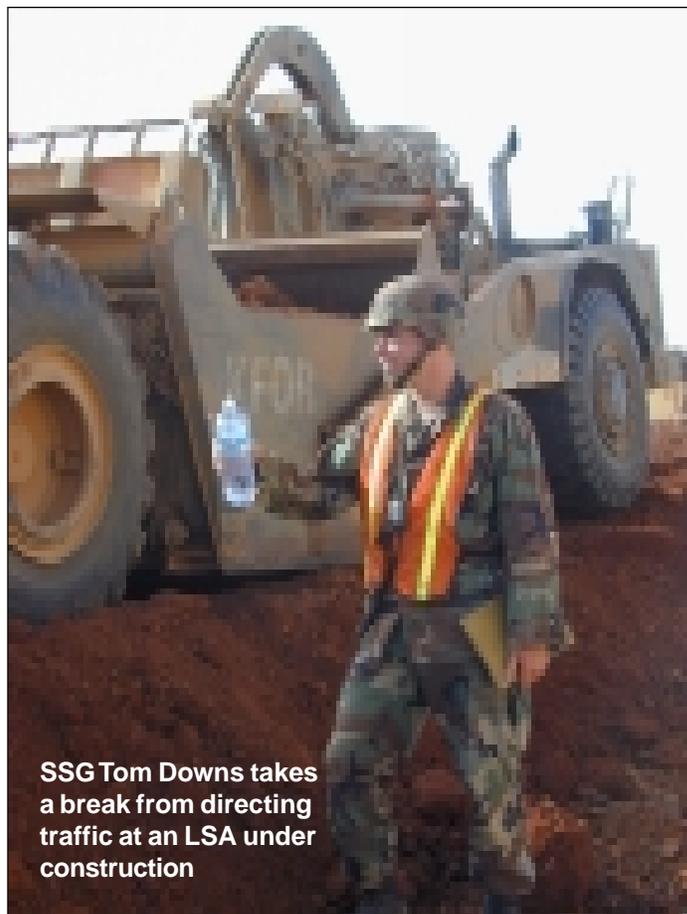
The overall site and design of the project was a joint effort by representatives from Corps of Engineers designers, the Brigade Construction Management Section and the construction section of the battalion's S-3 shop. In order to create an LSA from the existing hills, the horizontal construction team, led by 2LT Margaret Warner and SFC Timothy McGhee, cut over 150,000 cubic meters of earth in

30 days. The displaced earth was filled and compacted in strategic areas to create motor pool areas, a wash rack and an access road onto the LSA, maximizing the available space for future tenants of the area. According to SFC McGhee, "The soldiers of this battalion have literally reshaped the landscape here in Kosovo to create the area of operations for future peace-keepers."

Planned and managed by Alpha Company, Operation Wolverine Mountain utilized assets from across the entire battalion. This battalion effort included soldiers and equipment from all four companies in the battalion. At the height of the construction effort, the fleet of equipment included twelve 621B scrapers, eight D7G bulldozers, three 130G graders, and six compactors. On a daily basis, 72 personnel actively participated in the project during two overlapping shifts totaling twenty hours, including operators, supervisors, mechanics, surveyors, a designated support squad, and medics.

Strong junior non-commissioned officer leadership

The junior non-commissioned officers played the role most essential to mission success: site supervisors. Each sergeant assumed complete control and responsibility for a cut or fill site on the project. This team of NCO leaders came from all four companies and each took full ownership of their assigned sites. Gaining experience and confidence as the project progressed, these squad leaders and assistant squad leaders ensured maximum efficiency and productivity of the soldiers and the equipment in their charge.



Ssg Tom Downs takes a break from directing traffic at an LSA under construction

The two staff sergeants, Thomas Downs and Miguel Andujar, were the construction foremen (shift NCOIC) for their designated shifts. These shift NCOICs coordinated equipment utilization, haul routes and adherence to design specifications. Their responsibilities also included accountability of sensitive items, daily job-site safety briefings, work schedules and specific daily construction goals. By relying on their junior leaders, the platoon leader and platoon sergeant were able to concentrate their efforts on providing construction guidance, resourcing, ensuring quality control on the project, briefing visitors, and engaging in project planning.

Maintenance focus

Such a massive earthmoving project required an intense focus on maintenance in order to keep all the heavy engineer equipment running 18 hours a day for 16 consecutive days. To ensure consistent preventive maintenance, the construction effort included an innovative “maintenance hit-line.” Twice a day during designated times, operators and mechanics worked together at this four station assembly line to PMCS the equipment, lubricate the lube points, clean air filters, and refuel. This approach to maintenance integrated the mechanics fully into the operation and ensured quality attention to the equipment.

“Our mechanics are committed to keeping this equipment running,” asserted SSG Dominador Ragay, the NCOIC of the first shift’s mechanic team. In addition, a team of mechanics remained on site during all hours of construction. With constant accessibility to mechanics, operators were able to maximize the time their equipment was in use, contributing immeasurably to the productivity of the operation.

Battalion teamwork

The final essential element to the success of Operation Wolverine Mountain was the sense of teamwork and joint effort across the entire battalion. The magnitude of this project required significant assistance from every company in the battalion, and everyone felt part of the construction team.

Before the project commenced, 2LT Warner and SFC McGhee met with the entire construction team, emphasizing the importance of teamwork and stressing the battalion’s common goal of creating the LSA. Over the course of the project, soldiers from all companies felt a sense of ownership, and the operation benefited enormously from their initiative and selfless devotion of time and energy. “We’re all getting some great experience,” said SPC Christine Stanley of 535th Engineer Company (CSE), attached to the 94th.

The efficiency necessary to complete an earthmoving project of this scale was only possible because of the total support provided by the company and the battalion. For example, a squad of vertical construction soldiers from Alpha Company, led by SSG Joseph Hascin, was designated solely as a support unit to assist the construction operators in every way possible. This squad provided



Horizontal work included preparing sites for fueling points, supply, and ammo storage

essential support such as transporting meals to the job-site, maintaining and operating light-sets, guarding sensitive items during construction, and marking obstacles on the project site.

Their availability to perform these vital support missions allowed every construction operator to continue working, maximizing the productivity of the operation. Their motivation and initiative, like creating the “Hilltop Inn” as the break area and makeshift chow hall, raised the morale of the equipment operators. The success of the construction mission also depended on the battalion’s assistance in terms of survey support, dining facility support and quality control inspections.

“We’re all a team here,” said CPT Everett Spain, commander of Alpha Company. “We’re working together for the same goal.”

After 30 days of unabated construction efforts, the leadership of Operation Wolverine Mountain turned a top-quality construction project over to Brown & Root Services Corp. ahead of schedule. “We finished this project two days ahead of schedule,” said 2LT Margaret Warner, OIC of the project. “That’s truly a testament to the professionalism and motivation of the soldiers and leaders in this battalion.”

The greatest rewards reaped from this project lie in the construction supervisory skills of the junior non-commissioned officers involved in the project and the tremendous opportunity for construction equipment operators to improve their skills. Individual soldiers involved in the project feel a sense of pride in their contributions.

“It is nice knowing other soldiers will benefit from the work we have done,” said SPC Quincy McGhee, an equipment operator from Alpha Company. Also, the enhanced spirit of teamwork and cooperation heightened the battalion’s sense of identity as engineers for the rest of this deployment. Operation Wolverine Mountain truly validates the battalion’s motto, “Aid to Any Division.” ■

Excerpts from the “Wolverine Weekly”

By CPT Stephanie Arnold, Public Affairs Officer, 94th Engineer Combat Battalion (Heavy)

Following are excerpts from the 94th Engineer Battalion’s own *Wolverine Weekly*, all published during the height of Camp Bondsteel construction in August and September 1999.

Wolverines doing Camp Bondsteel’s “dirty work”

AUG. 4, 1999—The Wolverines of the 94th Engineer Combat Battalion (Heavy) continue to reconstruct the earth on Camp Bondsteel. This week’s focus adjusts to the critical completion of the Supply Support Activity Complex for the 299th Forward Support Battalion, which supplies all American forces in Kosovo with food, mechanical parts, fuel, daily supplies, and any other logistical necessities that units and soldiers have.



A scraper from the 535th lays rock for the Sewage Lagoon Access Road

The Earthmoving Platoon of B Company, led by 2LT Meghan Ederle and SSG William Randall, is leading this enormous effort along with the invaluable support from the 535th Engineer Company (CSE) and HSC. This cohesive team is responsible to relocate and redistribute more than 45,000 cubic meters of earth in a 250-by-160-meter area—often moving as deep as 10 feet of earth in places. This project has also required daily help and measurements by the surveyors from both HSC and the 535th.

To finish by the Aug. 14 deadline, the Wolverines are laboring 24 hours a day, only stopping to complete equipment maintenance. Whether working the midnight-to-noon shift or noon-to-midnight shift, the soldiers and leaders are loving this mission. “This is a great base project for everyone to work together,” says SSG Randall. SGT Daniel Osborne (also of B Company) echoes his sentiments: “This mission really helps esprit de corps. Everyone’s getting the chance to operate equipment—even the CO (CPT Beck)!”

Besides finishing the mission, SSG Randall’s primary goal for this mission is to cross train the soldiers on all



SGTs Robert Cougan and Gilberto Pagan of B Company level the final guard tower before placement of the concrete pad

equipment and to let new operators have the opportunity to practice. It obviously is working well. States SPC Terea Ford (B Company), “I’ve been able to operate (my equipment) for hours at a time, which is something I’ve never been able to do before.” She also highly commends her chain of command—specifically praising SGT Armando Mechaca, for his efforts: “He’s helping me become a better operator and soldier. He makes me want to do my best. “And when it comes to soldiering, it is examples like this who keep the Wolverines the best at what they do.”

This IS construction paradise

AUG. 11, 1999—The Wolverines are completely engaged in construction during only their fifth week of being entirely deployed in Kosovo. From the sewage lagoon to the Supply Support Activity hardstand to the latest mass of efforts on the wooden quasi-residential buildings, reverently known by soldiers throughout the Balkans as the SEAhuts (South-east Asian huts), the Wolverines are completing high-quality, critical construction missions throughout Camp Bondsteel.

The importance of building the SEAhuts cannot be understated. This was actually the primary reason the Wolverines deployed to Kosovo. These SEAhuts provide heat in the winter, air conditioning in the summer, a wooden floor on which to walk, and a bathroom (with actual toilets and showers!!) located no more than 25 feet



Two Wolverine carpenters work on a SEA-Hut while Wolverine earthmovers prepare the way for more

from the outside of the door. What else could a soldier possibly want?

Despite the much-needed relief from the 90 to 108 degree temperatures this past week, the worst is actually yet to come: The average temperature of Kosovo in October drops from 60s to mid-40s during the day. We already know the current temperature drop at night—add in the vicious winds on top of these hills and the several feet of snow this area gets, and these SEAhuts suddenly become critical to existence. This is why the deadline for their completion is 1 October, and why this Wolverine mission is so critical to all soldiers within the entire Task Force Falcon—now and for years to come.

To complete this mission on time, the Wolverines are once again joining efforts with Brown & Root Services Corp., just as they did at Comanche Base, Bosnia, in 1998. With a lot of heart, muscle and sweat, the Wolverines will once again improve soldiers' quality of life to help make the deployment to Kosovo a little more comfortable.

Heavy metal helping repair war damage in Kosovo

AUG. 11, 1999—The air war against Yugoslavia ended just over two months ago, and we all remember hearing about the homes and area that were inadvertently destroyed when the Serbian military structures were bombed. Now that we are in Kosovo, the Wolverines are helping repair some of these demolished areas for the local civilians.

Third Platoon, 535th Engineer Company (CSE), spearheaded the latest Wolverine mission outside of Camp Bondsteel, just north of Urosevac. Led by 2LT Derek



Road repairs were necessary in some areas to allow both military and local civilian traffic to pass through

Pommerenck and SSG Bruce Brown and accompanied by the battalion interpreter and a detachment from EOD, this group removed rubble, large debris, and demolished cars while also creating a passable road. By completing this mission, the local civilians can finally travel along this road. These improvements also provide U.S. and all other KFOR easier access to the local weapons range, which enables our forces to remain qualified on their weapons and thus better prepared to keep peace in this area.

Following this mission, 3rd Platoon also completed repairs on the actual weapons range. The protective berm behind the targets had become too compacted, and rounds were actually ricocheting to dangerous distances. After

analyzing the situation, the Heavy Metal Warriors used a dozer to break up the compacted area and allow the range to continue to be used.

When asked about the mission, 2LT Pommerenck emphatically stated, "Everyone really enjoyed these missions. Not only was it good to get outside the camp, but after we were done, all of the people came up and were hugging us—they were so happy to have their road back."

Downtown Wolverines keeping things smooth

AUG. 18, 1999—Hello again from the 94th Engineer Combat Battalion (Heavy)! We now proudly claim over 875 soldiers and 700 pieces of engineer and wheeled equipment. Since first arriving in Kosovo the end of June, we have been working day in and day out to create a safer, better, and more comfortable base camp for everyone. We are proud to share with you the accomplishments of all our great soldiers!

The largest missions the Wolverines have been completing since arriving are the massive Life Support Areas (LSAs) to allow all soldiers to live in SEAhuts before winter. The northern LSA is located on "Wolverine Mountain" on which the Wolverines have been masterfully



Alpha Company's dozer pushes the 535th's scraper during the final stages of the earth work on Downtown

finishing both the earthwork and construction of SEAhuts.

After completing the feat of lowering Wolverine Mountain, this week the Wolverines completed the "Downtown" Section of the North LSA. Led again by 2LT Margaret Warner and SFC Timothy McGhee of A Company, this construction team had superior operators and mechanics from A Company, HSC, and the 535th, and the highly competent surveyors and medics from HSC. Starting on July 29 and ending Aug. 12, this motivated crew removed over 76,000 cubic meters of earth and created four separate "fill" sites for future projects—the east access road, two motor pools and the equipment wash rack (similar to a huge car wash). Despite aggressive work estimates based on their previous mission, the crew still finished two days ahead of schedule.

The crew worked two shifts, with the first one going from 5 a.m. to 3 p.m. and the second one from 3 p.m. to 1 a.m. One key factor of this mission's huge success was the crucial role of the site NCOICs—the day shift led by SSG Thomas Downs (A Company), SGT Francisco Mendez (HSC), SGT Gerardo Bazan (535th), SGT Fabian Koder (A Company), SGT Kimberly Valentine (A Company), and SGT Vanessa McKoy (HSC). The night shift was led by SSG

Miguel Andujar (A Company), SGT David Turner (A Company), SGT Michael Welker (A Company), SGT Edward Rojas (HSC), and SGT Michael Neal (A Company).

Unlike the first mission requiring only a rough finish, the Wolverines shaped this area within 10 cm of the design. This allows gravel to immediately be placed in preparation for the Wolverines to build more SEAhuts.

We own the night

AUG. 18, 1999—Even with the temperatures in Kosovo consistently hovering in the upper 90s, the Wolverines are already constructing their eighteenth SEAhut at Camp Bondsteel. To beat the blistering heat, our carpenters have temporarily changed their work schedule to work in the cool evening and early morning hours. Using light sets around the work site, the vertical platoons from the 94th's A and B Companies, joined by A Company of the 864th Engineer Combat Battalion (Heavy), are completing the same quality construction while being safer and more comfortable while working.

This week, A and B of the 94th also massed efforts to complete SEAhuts for the Special Operations Command and Control Element. Building five living SEAhuts and one for admin, this mission is critical to relocating the Special Operations unit from the middle of another future Wolverine construction site.

The Wolverine model soldier

AUG. 18, 1999—Do you need something built? Wooden bins for maintenance or supply parts, unit bulletin or briefing board, mailbox, stairs for the dining facility or a funeral ceremony, the AFN television box, a first aid sign for the aid station, temporary showers, or maybe a model SEAhut? If you are a Wolverine, there is a good chance you have thought of SPC Guillermo Hernandez several times to complete these (and countless other) tasks.

SPC Hernandez, 29 and originally from Puerto Rico, is arguably one of the most talented soldiers in the battalion—although by his unassuming nature you would never know. An electrician by MOS, SPC Hernandez's exceptional manual dexterity and acute attention to detail also enable him to create masterpieces such as the mini SEAhut.

The model very closely mirrors the real thing: The model's dimensions are 101 by 44 by 23 centimeters, whereas an actual SEAhut's dimensions are 92 by 32 by 20 feet. Using over 700 pieces of wood and 1500 five-eighths-inch nails, SPC Hernandez completed this model "in about 40 hours and with a lot of hand cramps," he laughingly explained. The model SEAhut comes complete with air conditioning units, door handles, mosquito netting to represent the supporting wire, and actual insulation. He even added a receptacle box to replicate the latrine unit.

SPC Hernandez was instrumental in building all 44 SEAhuts with B Company during their deployment to Bosnia last year. Using this experience and the actual floor plans, he created a model that is now proudly displayed in the battalion's TOC (Tactical Operations Center).

SPC Hernandez (who is promotable as of this past week) used to build model cabinets for his business when



SPC Guillermo Hernandez with his latest creation, the model SEAhut

living in Puerto Rico. While considering his specialty to be making furniture, he thoroughly enjoys electrical and plumbing work also.

Have a spare minute? Stop by the TOC and see this creation for yourself.

You WON'T be disappointed.

Keeping things cool

AUG. 18, 1999—Fire. That magical, mystical alive being that enralls people of all ages and allows us to roast marshmallows. Fire. That powerful, relentless force that can destroy all material possessions and even lives in minutes. Fire. What hopefully we will never have at Camp Bondsteel. Fortunately, our firefighters—from the 562nd and 521st Engineer Detachments, Fort Leonard Wood, Mo.—are taking definitive steps to help ensure that should one start, all people know how to put it out.

As critical as refresher courses are on how to put out fires with a fire extinguisher, they are even more critical for those who have never even seen a fire extinguisher. The firefighters, led by SGT Michael Hudgins, have been working in conjunction with Brown & Root Services' safety managers to set up and lead classes to both American and local civilians working as cooks and food service specialists. This program actually originated in Albania during Task Force Hawk, after one of the kitchen units burned to the ground. Since then BRS has primarily been using propane as opposed to MOGAS; however, kitchen fires here are still at least as lethal as they are in a kitchen back home.

The firefighters have conducted classes in both Albania and Kosovo, and in all the firefighters have already trained over 1000 civilians. "The main goal is to allow these workers to get hands-on experience with the extinguishers to gain confidence in what they can do," SGT Hudgins explained.

SGT Hudgins, CPL John Brenne and the rest of the fire crew taught the classes, using an interpreter to pass the information to the local workers. Starting first with merely passing around several extinguishers, the fire fighters then



One of the local cooks takes her turn at fire extinguisher training

explained the parts, preventive checks and use of the fire extinguishers. Using a burn barrel, a firefighter put out the first fire and then several local workers had the same opportunity. All attempts were highly successful, and all volunteers received large rounds of applause for their efforts.

The fire fighters also taught various “stop, drop, and roll” techniques and other methods for people to extinguish both objects and people on fire.

For many Wolverines this may at first seem like another nice program that the Army is sponsoring. Realize, though, that after attending one of the classes, I returned that evening to see several class attendees who were cooking at our Sunset Café Dining Facility. I realized this is a GREAT program, and thank the firefighters for helping to keep US safe!

Teamwork and tenacity ensure success for the Wolverines

AUG. 25, 1999—When was the last time the Bituminous Distributors had the opportunity to work? Three years ago in Bosnia!!! That’s right, a close cousin of the concrete mobile, the M918 Bituminous Distributors have been called upon from none other than the Asphalt and Concrete Platoon, HSC. Through a lot of hard work and applied heat, two M918s had the opportunity to prove themselves ready for action and a test strip conducted on Friday at the East Access Road. Of course, missions in asphalt are always an adventure.

We knew it was going to be an interesting experience when the local owners of the asphalt plant did not have any idea what kind of bitumen they had in their tank. After an eventful morning of watching the nationals load one of our trucks, an activity in which we refused to participate when we say their “methods,” we only had 650 gallons. The reality set in that the only way we would get the amount we needed would be if we fixed the pump ourselves. Using a hand held heater, SPC Williams and SPC Frederick, under the direction of SSG Padilla and SSG Tennant, went to work unfreezing two pumps and pipes that were clogged with cured bitumen.

Though they eventually found success, the work was to no use. The bitumen currently in the truck was so viscous that it would not circulate in the tank. For those readers who have no idea what bitumen is, it is the sticky tar material used in asphalt that must be heated to temperatures exceeding 200 F before being placed. The greatest fear of all asphalt soldiers flashed through our heads—what if we can’t get it out?!! After some intense work heating the



Engineers heat bitumen valve in attempt to test local asphalt

distribution and the pump, we decided to try out our test strip with what we had just to see if we could ever use the bitumen.

That evening on a pre-test, we diluted the bitumen with 50 gallons of diesel fuel to lower the viscosity. When we attempted to spray, however, it still came out in streaks. The bitumen was definitely not going to work for serious surface treatment. Friday was the true test. After 2 hours of heating to 225 F and considerable heating of the spray bar, under the direction of SSG Campbell the impossible was accomplished. The horribly thick bitumen actually sprayed!

With the help of the 535th’s 5-ton dumps and A Company’s two-and-a-half-yard bucket loader, our aggregate spreaders went to work spreading half-inch diameter aggregate delivered by the Equipment Platoon, HSC. After 5 hours of grueling hot physical work in the 100-plus degree weather wearing flak vests and kevlar, a 260-meter section of the East Access Road had received a single layer of bituminous surface treatment.

Of course, surface treatment is not possible without good ground work. Alpha Company’s 62J squad, working with 2nd Platoon of the 535th, graded and compacted the road to required standards. Though most EM platoons are familiar with the sights of our rollers, few know that those dependable rollers main reason for existing is to roll asphalt. Equipped with adjustable scraper bars and water bars, they can clean themselves off while rolling sticky bitumen. One of the rollers had the opportunity to do its job by compacting the aggregate into the bitumen, an important part of the surface treatment process.

Ideally, we would place a prime coat first to waterproof the road and then a second layer of 3/8-inch aggregate with bitumen over the first. Neither was possible, however, due to the high viscosity of the bitumen.

Though the test strip lacked the success the battalion had hoped for due to poor materials, the success of the asphalt and concrete platoon was extraordinary. We will



An asphalt test strip was laid down to evaluate local bitumen

be releasing a new TM on how to fix your own asphalt plant as well as the pamphlet "Bituminous Distributors and You: The Self-Help Cleaning Guide." Just give this platoon the right bitumen and we will get rid of the dusty roads once and for all!!!

Contributed by 2LT Rachel Cazier, Asphalt and Concrete Platoon Leader, Headquarters Support Company, 94th Engineer Combat Battalion (Heavy).

The Wolverines host USAREUR's NCO leadership

AUG. 25, 1999—The 94th Engineer Combat Battalion (Heavy) had the distinct honor this week of hosting several of United States Army Europe's most senior Non-Commissioned Officers. The Wolverines met and ate lunch with the Command Sergeants Major from USAREUR, CSM Miller; from 1st Infantry Division, CSM Montgomery; from Camp Able Sentry, Macedonia, CSM Ruelas; and from Task Force Falcon here at Camp Bondsteel, CSM Schofield.

The CSMs met first with CSM Delgado, 1SG Williams (A Company, 94), 1SG Bond (B Company), 1SG Villanueva (HSC), 1SG Smith (535th), 1SG McKenna (568th), 1SG Gerlach (A Company, 864th), and SGT Edward Robinson (B Company and battalion's NCO of the Quarter). Following, the group stopped shortly in the battalion Tactical Operations Center to look at the SEAhut model made by SPC Guillermo Hernandez (HSC), and then went to lunch in the Sunset Café.

Each company selected soldiers and junior leaders to eat with the CSMs, and each soldier had the opportunity to talk with these leaders and ask tough questions. CSM Miller asked the soldiers for their recommendations and their feelings about the deployment so far.

One of the biggest questions from everyone was "When are we going home?" to which CSM Miller stated that Dec. 3 was our target date. He also stressed the importance of what the engineers were doing for Task Force Falcon and what Task Force Falcon was doing for Kosovo. "You are an example of how different, diverse cultures can get along, which is exactly what we want to

demonstrate to these people," he explained.

Anything but shocking

AUG. 25, 1999—Do you remember as a kid always wondering what would REALLY happen if you put that pin in the outlet? Or what about putting a 9-volt battery on your tongue? Exciting, right? Now imagine if working with electricity was your only job?! PV2 Steven Platzer of A Company, 94th, whole-heartedly agrees that being an Army electrician is one of the best jobs around, and he even stated, "I don't even take a break. I get so into what I'm doing that I don't want to stop. I even give my NCOs an excuse to stay working."

His enthusiasm carries over to his work performance. At 19 and after being in the Army for only a year and a half, PV2 Platzer was hailed this week by the Brown & Root Services master electrician for performing work that exceeded a union's license standard. He also received a coin from CSM Schofield, the Task Force Command Sergeant Major, for his exceptional electrical work.

For the past three weeks all ten 51K Electricians from A and B Company, 94th and A Company, 864th are working with the BRS Master Electricians. Overall led by SGT Gregory Tillman (A Company, 94) and SGT Steven Juliana (B Company), these electricians are installing 220-



Electricians had both on- and off-post opportunities to gain experience

volt wiring, panel boxes, and lighting fixtures throughout the SEAhuts. Although the military and civilian electricians normally work independently, the Wolverine electricians have continuous opportunities to learn from these licensed electricians with 20-30 years of experience. BRS has also adopted some of the Wolverines' practices in their joint completion of the SEAhuts.

This is a unique opportunity for the military electricians, who very rarely have the opportunity to perform their jobs. They usually cross-train as carpenters along with the other soldiers in their platoons, and many become certified in both electrical and carpentry through the Army. These electricians are working only in their Military

Occupation Specialty here at Camp Bondsteel, and they will continue to do so throughout most of the deployment.

When asked about this opportunity from a leadership perspective, SGT Tillman had only positive remarks: “The teamwork has been amazing among all three companies and Brown & Root. I really enjoy being an NCOIC to help soldiers learn what they should while in a positive working environment.” In a separate conversation, PV2 Platzer reiterated this theme while also praising his leadership: “This is a once in a lifetime opportunity. I’m really learning a lot working with everyone, and I wish we could have more NCOs like SGT Tillman. He cares a lot for his soldiers.”

Just like their work, these sentiments about Wolverines are, well, anything but shocking. WOLVERINES!!

Why “Bondsteel”?

SEPT. 1, 1999—The place we presently call home: Camp Bondsteel, Kosovo. This place we are quickly transforming from a wheat field into a booming metropolis was not named for the metallic properties in the soil or for unit cohesion propaganda. It was named for SSG James Leroy Bondsteel, who distinguished himself while serving as a platoon sergeant with A Company, 2nd Battalion, 2nd Infantry, 1st Infantry Division, near the village of Lang Sau, An Loc Province, Republic of Vietnam, on May 24, 1969.

With a friendly unit endangered by intense fire from a North Vietnamese Battalion located in a heavily fortified base camp, Company A was directed to assist. SSG Bondsteel quickly organized the men of his platoon into effective combat teams and spearheaded the attack by destroying four enemy occupied bunkers.

He then raced some 200 meters under heavy enemy fire to reach an adjoining platoon that had begun to falter. After rallying this unit and assisting its wounded, SSG Bondsteel returned to his own sector with critically needed munitions. Without pausing, he moved to the forefront and destroyed four enemy occupied bunkers and a machine-gun which had threatened his advancing platoon.

Although painfully wounded by an enemy grenade, SSG Bondsteel refused medical attention and continued his assault by neutralizing two more enemy bunkers nearby. While searching one of these emplacements, SSG Bondsteel narrowly escaped death when an enemy soldier detonated a grenade at close range. Shortly thereafter, he ran to the aid of a severely wounded officer and struck down an enemy soldier who was threatening the officer’s life. SSG Bondsteel then continued to rally his men and led them through the entrenched enemy until his company was relieved.

His exemplary leadership and great personal courage through the four-hour battle ensured the success of his own and nearby units, and resulted in the saving of numerous lives of his fellow soldiers. By individual acts of bravery, he destroyed ten enemy bunkers and accounted for a large toll of the enemy, including two key enemy commanders.

For conspicuous gallantry and intrepidity in action at the risk of his life above and beyond the call of duty, SSG James Leroy Bondsteel was awarded the Medal of Honor.



Camp Bondsteel, U.S. Sector, Kosovo

And so the Wolverines help create Camp Bondsteel, the primary base camp in the American sector of Kosovo, 30 years after SSG Bondsteel committed this heroic set of acts. Through his name, SSG Bondsteel serves as a daily reminder to all of us of our Army LDRSHIP values (Loyalty, Duty, Respect, Selfless Service, Honor, Integrity, and Personal Courage) that help keep our military the greatest in the entire world.

Creating the roads not yet traveled

SEPT. 15, 1999—The earthmoving construction missions continue in full force this week, as the Wolverines complete the main road system throughout Camp Bondsteel—including the East Access Road, the West Access Road, Lightning Road (central access), and Gilman Road (southern access). Except for areas still inhabited by soldiers, all of these roads will be completed by the end of today, Sept. 15 (barring any natural disasters).

This road system’s construction has been continually evolving alongside the ongoing creation of the SEAhuts. For instance, 1st Platoon, 535th Engineer Company (CSE), is completing its third iteration of the West Access Road, on which it has been working since the day they arrived early July. Why the changes? “We knew the first road was temporary, but vehicles needed to be able to get in and out of camp,” explains Platoon Leader 2LT Caroline Ayres. After helping complete Wolverine Mountain and the hardstand for the Supply Support Activity, the platoon completed what was supposed to be the final West Access Road. The camp planners then realized they needed more area for the helipads, and 1st Platoon is now completing the permanent West Access Road.

Meanwhile, 2nd Platoon of the 535th is completing the East Access Road, with the culminating feat of placing a 2-meter (about 6-foot) diameter culvert. After determining the runoff through this area—using such factors as average rainfall, the soil’s qualities, and the land from which water flows into this area—the platoon determined it needed four “Big Bertha” culverts to provide adequate drainage. The company’s welders adjoin these 40-foot long culverts before the platoon covers and compacts the culverts with



Third Platoon of the 535th prepares Lightning Road, linking Bondsteel's East and West Access Roads

earth and rock.

Third Platoon of the 535th is completing Lightning Road, while simultaneously B Company is completing the southern access road—Gilman Road—named after our fallen Wolverine from B Company, SPC Anthony Gilman.

These roads have been a highly synchronized effort among the companies within the battalion, as soldiers from the entire 94th have joined efforts to help meet the Sept. 15 deadline. The Wolverines have also been greatly assisted by the Brown & Root Services Corp. (BRS) with the help of placing all these culverts and major excavation work. "Our soldiers are all motivated, and the teamwork is great," adds

2LT Ayres. "These operators are so good at what they do, and everyone is working really hard to get the job done."

"The" ASP

SEPT. 15, 1999—"It's a project, it's a project!" No we're not on Fantasy Island but on the engineering island, Camp Bondsteel, and the 568th Engineer Company (CSE) has been tasked another construction project. "It is no longer a time to get our feet wet, we are definitely now in the sustainment phase" explains the Construction/Executive Officer 1LT Capra. After completing the north motor pools and being 95-percent complete with the sanitation lagoons, the 568th Engineers are "wild and ready" for this next challenge, which is the construction of the Ammunition Supply Point/Ammunition Holding Area (ASP/AHA) for Camp Bondsteel.

This will be the most technical engineering project given to 568th Engineers. The ASP covers about 3.26 kilometers of road and consists of 32 ammunition cells that will be constructed on a hilltop, northeast of the camp. The scope of the project involves the construction of three tiers of ammunition cells with three access roads for each tier. There will be eight ammunition cells lining the highest tier and twelve ammunition cells lining the middle and lowest tier. The ammunition cells consist of a three-side compacted berm surrounding eight milvans sitting side by side. The milvans will be placed on a 44-by-70-foot platform and the berms will be 13 feet high.

The ASP also involves the construction of an intricate



drainage plan. The natural drainage will be preserved as much as possible, however, 568th Engineers will insert 21 culverts, cut approximately 2.6 kilometers of V-ditch, and cut drainage ditches between the berms.



Firefighters from the 562nd and 521st Engineer Detachments responded to all manner of emergency calls both on and off the base camp

First Platoon has the task to construct all the access roads including the emplacement of the culverts and 2nd and 3rd Platoon have the task to construct all the ammunition cells to include cutting the drainage ditches between berms. All three platoons will be working intimately to complete this project to standard and in a timely manner. SPC Sarah Noble, D7G operator from 3rd Platoon states, "I'm getting a lot of stick time, it's neat because it is such a team effort."

The ASP is an involved, unique project. It presents an engineering challenge, but nothing the 568th Engineers cannot handle. The ASP can be defined as a grand finale for the "Wild and Ready" Team.

Contributed by 2LT Stacy Guarniere, Platoon Leader, 568th Combat Support Equipment Company.

Tending to more than just fires

SEPT. 15, 1999—Most soldiers and leaders are ecstatic to continuously be doing their jobs while deployed to Kosovo. Although the firefighters from the 562nd and 521st Firefighting Detachments love their work, we are glad that business has been a little slower for them recently!

Their latest blaze again involved two Serbian homes in Urosevac, of which they were actually able to save one of the two. "We were able to get there when the fire wasn't totally involved," SGT Michael Hudgins, team chief, explained. This fire was unique in that it had significant structural damage and collapse; however, the firefighters have become quite accustomed to the nuances of these

buildings and were able to put out this fire without even recharging their water tanks.

This team was already closely-knit when arriving at Camp Bondsteel, but developed an impermeable bond while working in Kosovo. "We know each others' moves and we've learned how to better cover for each other. Even in this past fire when I was hanging on the roof, my guys just told the locals not to worry because 'He's a professional,'" SGT Hudgins laughingly added.

With the decrease in "hot requirements," the firefighters have been receiving calls to help with medical emergencies. Their latest calls were for an American soldier who passed out while taking a shower and a 12-year-old local child having an epileptic seizure at the front gate. SPC Brandon Couch and SPC Robert Harrell are Emergency Medical Technicians, and they were able to use these skills to provide immediate care before helping transport the two to the camp's medical facility.

The firefighters have also been conducting Fire Marshall classes every Wednesday to soldiers from all units on Camp Bondsteel. Every tent (and now SEAhut room) is required to have a Fire Marshall, and SGT Hudgins and crew have been giving classes to these fire marshals. The focus of these classes is on how to perform fire inspections and identify possible hazards from a common sense approach. As much as these firefighters love their technical fire jargon, they also realize that soldiers need the practical information to keep them safe and fire-free.

In between teaching classes, tending to the ailing, and fighting fires, the 562nd/521st Firefighters also had the opportunity to move into the new SEAhuts. This move was their eighth since deploying in April: five times in Albania and three times since arriving in Kosovo. They did point out the fact that this greater development on Camp Bondsteel will probably diminish the number of fires for which they will be called upon to fight off the base camp. When the firefighters depart there is no backup, and soldiers must rely only on their own fire extinguisher abilities to protect themselves.

COL McClure, 1st ID Engineer Brigade Commander, said it best of the firefighters: "These guys are like punters—they're ready to go in whenever, but I don't want to use them because it means I'm losing yardage."

Thankfully, this engineer team is still strongly running forward. Thanks for keeping us safe! 🇺🇸

In August meltdown, the Army readied for snow

By Dana Finney, Public Affairs Officer, Engineering Research and Development Center, U.S. Army Corps of Engineers

Military engineers in Kosovo braved the summer heat to ensure that U.S. peacekeeping forces will be able to meet the demands of winter. While most military personnel at Camps Bondsteel and Monteith tried to keep cool, an intensive effort orchestrated by Headquarters, U.S. Army Europe (USAREUR), aimed to keep them warm this winter while sustaining the mission.

Task Force Falcon engineers are simultaneously managing hundreds of individual projects at the two base camps. Strategic planning enables the engineer team to expedite progress while avoiding duplication and unnecessary moves. This approach means that longer-term goals can be incorporated into day-to-day priorities. So, while the original focus was on building the base camp infrastructure, plans include measures to support cold-weather operations in the coming months.

Engineer forces in Kosovo have a major commitment to build two base camps that will be home to 7,000 U.S. peacekeepers. More than 1,700 military engineers are working side by side with engineers from the Army Corps of Engineers and the private sector.

Coming in from the cold

The engineers' rallying theme was "Soldiers in SEAhuts by 1 October." A SEA hut, or Southeast Asia hut, is USAREUR's standard wooden temporary housing unit for climates like that of the Balkans. Using lessons learned in Bosnia, soldiers in Kosovo moved directly into Tier 2 tents located on a site where SEAhuts would not be placed. This has avoided delays caused by relocating tents and

Jim Moore, BCCA, inspects water heater placement in a SEAhut



people to accommodate SEAhut assembly.

At Camp Bondsteel, which is being built from the ground up on former wheat fields near Urosevac, 160 SEAhuts are arranged in 40 quads (clusters of four huts). Camp Monteith is embedded in a former Serbian military post near Gnjilane. Existing facilities at the site are used to house some personnel, and 64 SEAhuts provide the rest of the housing.

Each 32-by-92-foot SEAhut includes a latrine and five rooms that sleep six to eight people. The rooms have fiberglass insulation in the walls, ceilings and floors and are equipped with electric wall-mounted heating/cooling systems. Each SEA hut also has a 120-gallon rapid-recovery water heater.

The Army's commitment to move personnel from tents to SEAhuts occupied most of the engineering resources and efforts at both base camps. Along with force protection and safety, improving soldiers' living conditions was the top priority, according to the chief of the Base Camp Coordinating Agency in Kosovo. Everything else was secondary.

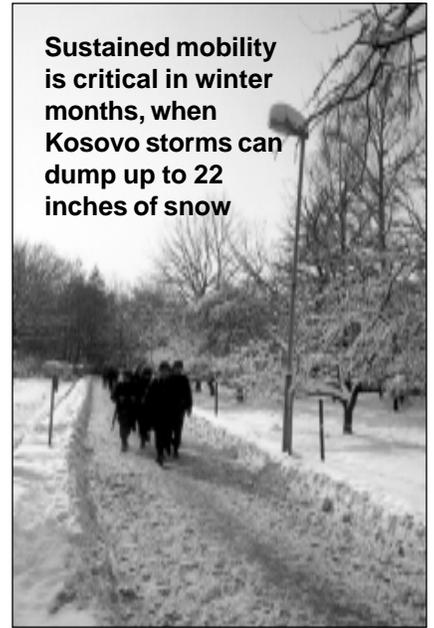
The first soldiers began moving into completed SEAhuts in mid-August. Some Tier 2 tents probably will be left up to handle surges of personnel during unit transitions, but all personnel assigned to the Kosovo camps for any duration will live in enclosed housing. USAREUR met its self-imposed Oct. 1 deadline to move soldiers into SEAhuts before the onset of cold weather, which typically occurs in mid- to late October.

Readying to dig out

With SEAhut construction almost completed, Task Force Falcon engineers are looking ahead to other challenges winter will bring. Among those are heavy rains and snowfalls. A single winter storm historically may dump as much as 22 inches of snow in the area. In coordination with Kosovo Forces (KFOR) headquarters, Task Force engineers are assessing requirements for snow removal as well as the most cost-effective means to do it.

"KFOR will probably have a central storm-response cell at the headquarters in Pristina," said the operations officer of 1st Infantry Division Engineer Brigade at Camp Bondsteel. "Engineers there are looking at what's available in country and trying to develop local contracts to help with snow removal. But there's not a lot of capability here, as we've discovered when seeking local construction

Sustained mobility is critical in winter months, when Kosovo storms can dump up to 22 inches of snow



support.”

With hundreds of earthmoving vehicles already in Kosovo, the most affordable option would be to retrofit what is there rather than import new equipment. A 5-ton dump truck can be outfitted with a blade and sand spreader, and plows can be attached to smaller vehicles like HMMWVs to clear secondary roads.

In typical engineer fashion—making do with what is available—a snow and ice clearance/abatement (SNIC) package was cooperatively developed by the 1st Infantry Division Engineer Brigade; the Office of the Deputy Chief of Staff for Engineers, USAREUR/7A; the Assistant Corps Engineer, V Corps; and the U.S. Army Cold Regions Research and Engineering Laboratory (USACRREL). The package includes 5-ton-truck snowblades, HMMWV snowblades, and both towed and mounted sand/salt spreaders. USAREUR initiated procurement of equipment through USACRREL on Aug. 18. The items, along with technical experts to help with equipment installation, arrived in Skopje, Macedonia, in late October.

KFOR’s central snow-removal effort will likely focus on main supply routes. NATO forces within the country will be responsible for keeping roads passable in their assigned region, as dictated by operational and humanitarian missions. Inside Camps Bondsteel and Monteith, Brown & Root Services Corp. will clear snow as part of a sustainment services contract.

Snow-covered mountains attest to the need for SNIC planning



Another consideration is whether the Army will be able to buy sand and salt locally. The area does not have natural sand pits but may be able to get “manufactured” sand, which is material screened from rock quarrying activities. It is expensive, but may be less costly than bringing sand in from another country.

While most of the Army’s snow and ice cleanup will be mission-driven, engineers will coordinate closely with civil affairs units assigned to outlying villages. When engineer assets are available, they can help with emergency civil functions, such as clearing access roads and ensuring schools and hospitals have power and water.

Modeling the winter terrain

Nearly every military activity in Kosovo depends on the Army’s terrain and mapping capabilities, and winterizing is no exception. The power and flexibility of geographic information systems (GIS) allow planners to model multiple variables and create maps reflecting their relation-

ships. For example, a 100-year storm can be superimposed with maps showing damaged roads to predict if a particular route would be passable. During winter preparations, engineers use GIS for mapping main supply routes, alternate routes, and local roads to allocate plows and other equipment. In addition to these operations, GIS supports winter tactics at the base camps.

“We’ve been modeling terrain and weather factors that could potentially contribute to a ‘state of siege’ when people are isolated from food, water and power,” said the intelligence officer of 1st Infantry Division Engineer Brigade at Camp Bondsteel. “Elevation is the primary concern. We’re also looking at terrain features—how landforms on slopes, called spurs and draws, will affect people’s ability to move about after a storm.” A spur is a higher elevation run, while draws are lower, valley-like areas where snow tends to drift.

This assessment uses historic weather data from the Pristina Weather Observation Center along with satellite data from the National Imagery and Mapping Agency and other sources, including NATO reconnaissance. Terrain and weather data are combined with maps showing “hot spots” of violent activity. The information indicates from a tactical standpoint where snow-removal equipment is needed to help quick-reaction forces respond to emergencies.

Shaping the landscape

Combat heavy engineers from the 94th Engineer Battalion are reshaping nearly all of Camp Bondsteel’s 750 hilly acres to achieve the level subgrade needed to site temporary facilities. The battalion is building ditches and other drainage structures to handle heavy rains and snow melt during the winter. Much of the grading for the camp has resulted in gradual slopes that will be easier for all vehicles to maneuver in the snow.

The Balkans’ freeze-thaw cycle was an important consideration in the earthwork. According to the construction foremen of the 94th’s Alpha Company, only areas that are pure “cut” have SEAhuts on them. The fresh-cut earth has a 3 percent grade, which allows good drainage and navigation and prevents the SEAhuts from sinking. Motor pools and storage facilities will be built on filled and compacted areas.

Using lessons learned

History cites countless military campaigns that suffered or failed because of severe winters—from Revolutionary War soldiers in freezing weather at Valley Forge, to Napoleon’s ill fated push through the Steppes, and the Nazi’s resounding defeat in Russia. In the United States, with its well-planned interstates and modern snow-removal equipment, most winter storms only slow people down. But in Kosovo, a harsh winter without preparation could threaten the peacekeeping mission.

Thanks to engineers, the lessons from history—and more recently from the U.S. experience in Bosnia—are helping prepare for the worst in Kosovo, in what many predict will be a “winter of discontent.” ■

Combat support equipment from Kansas to Kosovo

By 1LT Molly Capra, Executive Officer, 568th Engineer Company (CSE)

The 568th Engineer Company (CSE), from Fort Riley, Kansas, deployed to Kosovo the end of July to assist the 94th Engineer Battalion stationed in Germany, to construct a base camp for follow-on peacekeepers. The pre-deployment preparation for the 568th started at the end of June when they received notification of deployment for the end of July.

Preparing for deployment

The "Wild and Ready" team began preparations with an intense maintenance plan for all of the equipment. Recognizing that the equipment would be working in very austere conditions, their own organizational and direct support maintenance shops worked around-the-clock to ensure all equipment was fully mission capable. They also contracted Martin Tractor, a Caterpillar company out of Topeka, Kan., to conduct full services on all Caterpillar equipment, to include the D7 Dozers, 621B Scrapers and 130G Graders. This was the Caterpillar 2000 hour service.

The services performed included changing all fluids and filters, drive/fan belts, and engine valve adjustments. The original contract price was \$33,500. However, once we saw what Martin Tractor could do for the company, the contract was extended and major repairs were conducted. All additional parts were local purchased using the IMPAC credit card, and installed by Martin Tractor.

The presence of Martin Tractor was a significant force multiplier. With their specialized equipment and extensive knowledge of the Caterpillar equipment they were able to elevate most of the responsibility from the maintenance personnel, which allowed our maintenance teams to concentrate on other equipment and specialized training.

The unit loaded equipment on trains July 15. They loaded all 147 vehicles and 18 shipping containers onto 41 railcars in two days with a destination of Thessaloniki, Greece.

Once the equipment was rail-loaded, the company concentrated on preparing the soldiers for deployment. They began with weapons qualification, NBC training, and finished with IRT training. The IRT training consisted classes and lane training. The classes included country briefs, rules of engagement for Kosovo, force protection briefs,

media awareness, law of land warfare, mine awareness and SAEDA classes. The IRT lane training was designed to instruct soldiers on how to handle civilians on the battlefield and how to react to land mines, booby traps and sniper fire. The soldiers were broken up into 12 person squads, guided by NCOs who prepare other units deploying to Bosnia. The training gave the soldiers a realization of what they could encounter in country, and allowed them to train properly in preparation for any given situation.

Moving in, setting up

After an emotional deployment ceremony, the 568th boarded C-141s with a destination of Macedonia. The company transported in two separate lifts. The first lift contained the company commander, CPT Robert Eloi and platoon leaders to help pave a way for the follow-on flight. After a brief re-fueling stop at Gander RCAF Base, Canada, the flight continued onto Ramstein AFB, Germany, where they spent the night and made necessary logistical changes before flying on to Skopje, Macedonia.

The second lift, led by 1SG Andrew McKenna, faced a few challenges in the process of marrying up with the rest of the company. A mechanical failure forced the plane to make an unscheduled landing at McGuire AFB, New Jersey. After 2 days, the plane departed McGuire AFB, refueled at Ramstein AFB and continued onto Skopje, Macedonia, to meet up with the rest of the company.

Once in country, the unit initially stayed at Camp Able Sentry. The company waited for the equipment to be line-hauled from the port in Thessalonica, Greece, where the 568th had two NCOs oversee the downloading of the ship *Osprey* and the line haul to Camp Able Sentry. As the equipment arrived, the company's mechanics made necessary repairs incurred from the rail, ship and line haul travel. From Camp Able Sentry, the unit convoyed all 147

Early tasks for the 568th included construction of motor pools





The 568th joined with numerous other assets to build the helicopter landing zone

pieces of equipment to Camp Bondsteel, Kosovo in a series of convoys.

Construction projects

The 568th hit the ground running at Camp Bondsteel. They began their first construction project, building three motor pools for the 9th Engineer and 94th Engineer Battalion's equipment. Ground breaking began Aug. 11 with full enthusiasm from all members of the 568th. The soldiers have been looking forward for an opportunity to use their skills in a real-world mission.

"It's not very often that you get the opportunity to be a part of an Engineer mission that will provide sustainment facilities for follow-on units," said the project Officer-in-Charge, 2LT Stacy Guarniere. Each motor pool is 143 by 82 meters in size. The project was expanded to include another parking pad, a 9-meter-wide road and a drainage culvert.

The next mission was to construct the sewage treatment lagoons to hold the camp's wastewater. Two platoons were tasked to accomplish the mission. The crews are working around-the-clock to complete the project before the activation of the first lagoon. The work site, which is located outside of Camp Bondsteel's perimeter, initially provided some challenges for the soldiers. The main issue was the security of the site. First Platoon's soldiers put in over 1,400 meters of triple standard concertina wire and 2nd Platoon's soldiers constructed an 8-foot protective berm around the project site to ensure force protection. These security measures allowed the soldiers to work without flak vests, increasing morale and work productivity.

The lagoon system consists of four independent ponds that are 200 by 300 feet, forming a rectangle. Each lagoon is surrounded by a 7-foot berm on all sides with bases tiered to facilitate drainage. Currently, the 568th has completed one lagoon and is close to completing a second lagoon.

Overall, the projects are progressing well due to the excellent operators and NCOs who are overcoming all the

challenges that present themselves. Everyday they gain more knowledge and experience, becoming better at what they do.

The next major mission for the 568th Engineer Company is to construct the Ammunition Supply Point for the storage of ammunition for future peacekeeping units. The project will involve all three platoons and is expected to begin within the next week.

Not only are the engineers in the company obtaining the opportunity to show their skills, but also the maintenance side of the house is providing essential assistance to the platoons in order to make their missions successful. They have contact teams on each site to ensure the equipment stays operational. They also have soldiers in the motor pool working around-the-clock to get equipment operational.

"Everything that has broken, we have been able to fix," said senior maintenance technician CW2 Joseph Brewer. This fast turnover rate of equipment being repaired has ensured success of the missions, which will save us more time in the long run as the winter months are quickly approaching.

Humanitarian work

Aside from the military construction of Camp Bondsteel, the "Wild and Ready" team has also taken on the responsibility to "adopt" a school in the local area. This labor of love turned out to be a great release for the soldiers participating in the project. A detachment, led by SSG Randall Barton, went to the school with earth-moving equipment and gravel.

By the end of the day, the Rachovica elementary school had a new fence to keep the cattle out of the playground, a gravel parking lot, an access road leading to the school, and an improved soccer field. SSG David Munford, the company's construction quality control NCOIC says, "Kids will remember this, and THAT'S what will make a difference in the future." ■

Demining from a distance

By Dana Finney, Public Affairs Officer, Engineering Research and Development Center, U.S. Army Corps of Engineers

ADVANCED weapons make the Army a lethal force, but technology is at its best when it widens the gap between soldiers and danger. That is exactly what the Panther and Mini-Flail mine-clearing systems do. Both are remote-controlled and designed to blow land mines in place.

"This equipment gives us the capability to take soldiers out of harm's way," said LTC Everett McDaniel, commander of the 9th Engineer Battalion at Camp Bondsteel.



The Mini-Flail

"Machines are replaceable—soldiers are not."

The engineers have two Panthers and three Mini-Flails to help them with their mine-clearing missions. The Israeli-developed Panther, a modified M60 tank, uses 9-ton forward rollers to detonate mines, which typically do little or no damage to the vehicle.

The Mini-Flail uses a small skip loader chassis without the operator cage. A forward-mounted drum rotates at high speed, flailing the ground with chains that strike with a force of about 300 pounds per square inch.

"The Mini-Flail clears lanes in the field to provide footpaths," said operations officer MAJ Joseph T. Hand. "You send it through to check for anti-personnel mines when you don't know if an area has been cleared."

Engineers at Camp Bondsteel saw the equipment demonstrated by CW4 Robert Steele, systems manager with the Unmanned Ground Vehicles/Systems Joint Project Office at Redstone Arsenal, Ala. Steele had seen the Panther used in Bosnia, where extensive minefields were common.

"The engineers used it to proof base-camp sites and quite often for proofing routes. They would run the Panther out in front of a convoy, with the control vehicle a safe distance behind it," Steele said.

The Panther's remote control is a personal computer with video simulation software and radio devices that trigger actuators on the tank. It can start and drive the Panther from as far away as 800 meters, yet fits in a suitcase.

The Mini-Flail controller is a small, hand-held device no bigger than a field radio. It has small joysticks that allow the user to maneuver the vehicle.

Both systems are diesel-powered, and the Panther has controls that can be overridden to allow manual operation. "This Panther is a more advanced system than the earlier version in that you can turn off the automatic control and run it manually to set up, then turn the remote back on to proof the field," said 2LT Lucius Mitchell, 9th Engineer Battalion.

Most demining work stops during winter, so the Panther and Mini-Flail likely will not be used in earnest until next spring, McDaniel said. "We'll probably be asked to help the humanitarian groups at some point. Right now, they clear mines just like you would do an archeological dig—one 10-meter by 10-meter area at a time. It's a very slow process," he said.

It is also a dangerous proposition, as are most other mine sweeping methods. "I've cleared areas using an M1 tank with rollers, and you always end up putting soldiers in harm's way," said Mitchell. "The remote system is a great tool."

In addition to supporting humanitarian operations, the Panther and Mini-Flail may also be used to proof minefields after the Serb and Albanian factions clear the large number of mines they placed during the fighting. Combat engineers will continue to train on the systems this winter. ■



Clearing a path to a water reservoir in Letnica



The operator keeps his distance from the Mini-Flail with a remote control

Engineer non-commissioned officer provides aerial view

By Dana Finney, Public Affairs Officer, Engineering Research and Development Center, U.S. Army Corps of Engineers

Have you ever finished a big project and asked, “Now why didn’t I take a ‘before’ picture?” Thanks to one non-commissioned officer who was thinking ahead, the wheat field that became Camp Bondsteel is forever captured in aerial photographs—as it looked last June when the first U.S. troops arrived.



MSG Michael Taylor (r) prepares to go up in a Blackhawk to shoot aerial photos

MSG Michael Taylor, Assistant Division Engineer non-commissioned officer in charge (NCOIC) for the 1st Infantry Division, was among those first soldiers on the ground June 12. But he did not stay on the ground long. Taylor had been asked to recon main objectives in sector and to establish a landing zone for the Task Force Commander’s arrival the next day.

“Aerial photography was going to be critical to much of what we’d be doing in reconnaissance for all the engineering activities,” said Taylor. “I went out on several helicopter flyovers to take shots of six potential base camp sites, the borders, railroad crossings, and bridges in the U.S. sector. We also needed to show bypass routes in case any bridges were destroyed or damaged.”

“Taylor’s work in Kosovo transcended what we normally expect for engineer operational support,” said MAJ Curt Lapham, Deputy Operations Officer, Multi-National Brigade (East) Headquarters. “He came in every day with new ideas that added to the success of our mission.”

In shooting the countryside for reconnaissance, Taylor also took numerous aerial photos of the landscape that had been staked out for Camp Bondsteel. Other shots captured the existing military post that was slated to become Camp Monteith.

“The aerial shots proved invaluable as we began

laying out the base camp plans,” said LTC Patrick Guinnane, Chief, Base Camp Coordinating Agency (BCCA) at Camp Bondsteel. The BCCA, staffed mostly by civilians with the U.S. Army Corps of Engineers, was charged with managing the huge Kosovo engineering effort under the 1st ID Engineer Brigade. “We’ve used the photographs in nearly every facet of planning,” Guinnane said.

In addition to showing the base camp locations, Taylor’s air trips helped document resources around the sector that could support U.S. forces—quarries, mining operations, power plants, water supplies, timber mills, and so on.

As the base camps grew, so did his photographic library. In just 3 months, some 6,500 pictures documented the engineers’ progress in building Camps Bondsteel and Monteith. Photographs taken at regular intervals have been extremely valuable in communicating the sequence of events to U.S. stakeholders.

“We used the photographs to map the infrastructure and existing sites for the whole U.S. sector,” Taylor said. “We also established the outer boundary to Serbia for KFOR headquarters by grid coordinates and marked it on the ground to prevent people from inadvertently crossing it.”

Taylor worked with task force headquarters to validate the border crossing points with the Serbian army. To help overcome confusion about exact locations, he created panoramic photographs that made it easier to communicate what the crossing points looked like on the ground.

According to Lapham, “This work in clarifying the provincial boundary between Kosovo and Serbia has international ramifications. The Serb army officers couldn’t believe our NCO was out establishing grid coordinates—they said only a much higher ranking officer would be trusted to do that in their army.”

Another key support role for Taylor was in photographing hazardous areas that have cluster bomb submunitions (CBUs), unexploded ordnance (UXOs) or landmines. He worked closely with the Mine Action Center and Explosive Ordnance Disposal experts in providing input to maps that were distributed to all units. “Aerial shots let us show the locations of UXO from a safe height,” Taylor said.

Where CBUs were to be photographed, pilots had to use extreme caution in their approach. Otherwise wind produced by the helicopter blades could inflate the small parachutes on these devices, which detonates them, he said.

“This aerial recon for air strikes and minefields greatly reduces the risk to our soldiers,” said CPT Nathan Bond, Task Force Falcon Mine Action Center. “The photos augment the maps we have by providing insets to show what dangerous areas look like on the ground.” Bond said the EOD team also used the information to place markers near UXOs and other hazards. “That shows local civilians the areas they should avoid,” he said.

In preparing for the current units’ transition out of Kosovo and arrival of the 82nd Combat Engineer Battalion in December, Taylor is doing aerial and ground reconnais-



Taylor documented construction progress at both Bondsteel and Monteith via periodic flyovers

sance for primary and secondary routes through Greece. In addition, he recently coordinated siting and construction of a weapons storage facility on Camp Bondsteel. He is now the NCOIC for this facility, which provides a secure holding area for weapons turned in by members of the former Kosovo Liberation Army.

“Master Sergeant Taylor has done incredible mission-oriented NCO work for both operations and engineering,” said Lapham. “He made countless contributions to our success here in Kosovo.”

Taylor’s background is somewhat unconventional for an engineer NCOIC. Besides finishing 2 years of college work in construction management, he completed the Army’s Ranger, Pathfinder, Senior Parachutist, Drill Sergeant and Air Assault schools. He achieved the rank of First Sergeant in just 14 years, a milestone that normally takes 18 years.

“I encourage young soldiers to take advantage of all the military training they can,” Taylor said. “If you want to pursue an engineer NCO path, try to get a related degree or take as many courses as you can manage. Most important, pass your knowledge on to others.”



Peacekeeping platoon

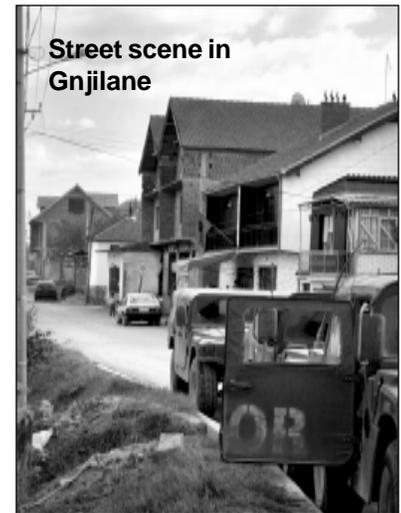
By 1LT Paul C. Stephenson, Bravo Company, 9th Engineer Battalion

In July 1999, the Assault and Obstacle Platoon, Bravo Company, 9th Engineer Battalion (Combat), transitioned from traditional engineer missions to peacekeeping operations in the city of Gnjilane, the capital of Eastern Kosovo. The platoon initially occupied a schoolhouse but later moved to the main post office and medical clinic in downtown Gnjilane. The mission was to provide security and stability to the city’s northern sector according to the Military Technical Agreement (MTA).

Signed in June 1999 by both Serbian and Kosovar Albanian leaders, the MTA outlined the withdrawal of Serbian forces from Kosovo and the demilitarization of the Kosovo Liberation Army (KLA). The platoon’s duties in Gnjilane included dismounted patrols, checkpoint operations and building searches. The platoon also ensured free access for both Kosovar Albanians and Kosovar Serbs at the clinic and post office.

Gnjilane

The largest city in Eastern Kosovo, Gnjilane serves as the cultural and economic center of the region. The prewar estimated population of the city was approximately 50,000. The ethnic breakdown among the population before the war was approximately 71 percent Kosovar Albanian and 23 percent Kosovar Serb. In addition, Gnjilane was home to small Gypsy, Turkish, Montenegrin and Croatian communities that accounted for 6 percent of the population. The majority of the factories and businesses in Gnjilane catered to the region’s agricultural industry.



The threat

In June 1999, marines from the 26th Marine Expeditionary Unit occupied Gnjilane. During the first few weeks, daily shootings between Kosovar Serbs and Albanians resulted in several casualties. On a few occasions, marines were caught in the crossfire. In addition, house fires set by arsonists occurred on a daily basis.

By the time Bravo Company, 9th Engineer Battalion, relieved the Marines in northern Gnjilane, much of the shootings and fires had subsided. However, the most serious threat to the Assault and Obstacle Platoon was still the possibility of being caught in the middle of aggressive



By October, merchants were starting to thrive in downtown Gnjilane

actions between Kosovar Albanians and Kosovar Serbs, who continued to attack each other in direct violation of the MTA. These groups—which included current and former KLA members, KLA sympathizers, organized crime, disgruntled Kosovar Serbs and former Serbian paramilitary—were involved in shootings, arson, home invasions, bombings, and kidnappings.

In addition, local Kosovar Albanians committed similar crimes, such as looting and house burnings, against Gnjilane’s Gypsy population in an attempt to force them from their homes. Local Albanians distrusted Gypsies, who were allegedly members of Serbian paramilitary groups and police during the war.

Daily operations

To minimize the threat against the platoon and to provide stability to the area, we conducted presence operations throughout our sector of Gnjilane. These operations included dismounted patrols, checkpoint operations and building searches.

Dismounted patrols: These consisted of four to seven soldiers. The patrol schedule varied to cover periods of time when house fires and looting occurred most frequently, which was during the late afternoon and early evening. Manning requirements increased for night patrols to provide more security.

Many soldiers in the platoon had not conducted patrolling operations since basic training, so the patrols provided a good training opportunity. In addition, the platoon could interact with the population, which was the highlight of the deployment for some soldiers. On patrol they could see the results of the operations—people coming back to their homes, children playing in the streets, and the beginning of the slow rebuilding process.

Checkpoint operations: Nightly checkpoint operations were conducted at the squad level to enforce curfew. Locations varied among different intersections throughout the sector to avoid developing a pattern. At checkpoints, pedestrians and vehicles were stopped and searched thoroughly. Manning for checkpoints varied from four to

eight soldiers with one NCOIC. Search teams consisted of one or two soldiers to provide security and two-man search teams. Each vehicle or individual that did not have a curfew pass was systematically searched.

Building searches: The most complicated operation the platoon conducted was building searches. Several factors were taken into consideration to make the searches a success:

- To justify our entry into buildings, probable cause must be established.
- A thorough reconnaissance of the buildings was required to determine entry/exit routes and security needs.
- Based on information collected during the reconnaissance, a search plan was created and briefed. The plan included the security team and building search team breakdown, searching methods, and point of entry.

Across the street from our command post at the post office were two unauthorized KLA buildings—a logistics headquarters and a civil administration center. The platoon was to search these buildings for illegal activity. Several days before the search, the platoon conducted detailed surveillance of the buildings. Sketches were made of the buildings, and persons entering and exiting were tracked to determine when the building was least occupied. During the surveillance, several uniformed KLA members regularly entered and exited the buildings.

In addition, we noticed antennas on the roofs and communications wire running between the two buildings. Both the uniformed KLA members and the communications equipment were indications that KLA command and control activity may have been occurring inside. The platoon’s surveillance of the buildings also included a thorough reconnaissance on each side of the buildings by two three-man teams.

After the reconnaissance, search teams were formed to execute the mission. The platoon was divided into security elements, search elements and a command and



2LT Jay Ranganan conducts a night patrol in Cernica

control element. The search elements acted as assault elements while security elements acted as support. Security elements, which consisted of two-man teams, were placed along likely escape routes. Security teams were to detain anyone who left the building. A roving search team in the street would provide fire support if required. Search teams were divided into two-man personnel-search teams and two-man room-search teams. Although FM 90-10-1, An Infantryman's Guide to Combat in Built-Up Areas, recommends three-man room-search teams, we reduced that by one person to increase the number of teams. The command and control element consisted of the platoon leader, a radiotelephone operator and a translator.

The KLA logistics headquarters was the first building the platoon searched. With security in position, the search teams and the command and control element approached the building. When the command and control personnel reached the building, a security guard met them. Through the translator, they explained to the guard the nature of

Alpha Company was assigned to this outpost in Cernica



their search and determined if there was anyone else in the building. Then they took the guard to a personnel holding area to be searched.

Meanwhile, the room-search teams entered the building and began to methodically search each room from the first floor to the attic. They checked for KLA documentation in desks, filing cabinets, closets and safes. When they found documentation, they took it to be translated. Any document that mentioned illegal KLA activity was turned over to the command and control element. The search teams also searched sheds in the rear courtyard for military equipment, ammunition and weapons. The security guard was brought back into the building to open doors and answer questions.

The search of the logistics headquarters confirmed our initial suspicions. Although no weapons or ammunition were found, illegal activity was occurring in the building. Besides unauthorized logistical activity, information found on a computer in the building revealed possible KLA criminal activity in the Gnjilane area.

After informing higher headquarters of the results of our initial search, a debriefing team from the task force intelligence section documented and collected our findings. While the intelligence section continued the search, the platoon remained on site to secure the building. The debriefing team confiscated several documents as well as the computer. The KLA logistics director, who arrived after the search began, and the security guard were detained and transported to the military police detention facility.

As the platoon became more proficient with peacekeeping operations, we began to fine-tune our techniques. Conducting presence operations gave NCOs and soldiers an opportunity to learn and practice personnel, vehicle, and building search techniques. In the process, squad leaders and junior leaders learned valuable lessons that they will carry with them throughout their careers. 🇺🇸



535th Combat Support Equipment Company

By *1LT Kellie J. Barry, Executive Officer, 535th Engineer Company (CSE)*

Since April, the 535th Engineer Company (Combat Support Equipment)—which averages 125 deployed personnel and 132 pieces of equipment—has moved from its home station of Grafenwoehr, Germany to five different countries through four airports and three sea ports. The company's organization—which includes its own direct support maintenance, personnel action center, communication specialist, surveying team and food service section—makes it uniquely capable of deploying independently.

The first 50 years

As the only active-duty combat support equipment company remaining in Europe, the 535th anticipated the call they received early this year to support the escalating conflict in Kosovo. The company's three identically organized earthmoving platoons distinguish it from the combat heavy line company, which has only one horizontal platoon. Thus the 535th is arguably USAREUR's most potent earthmoving asset. The Heavy Metal Warriors' service in the Balkans this year continues their long tradition of participation in combat and military operations other than war.

The unit originated in February 1944 and was activated one month later as C Company, 1008th Refinery Battalion, Engineer Petroleum Production Depot, Santa Anita Ordnance Training Center in California. Reorganized later that year as the 535th Engineer Drum Plant Company, the unit was sent into action in the Philippines. After being awarded the Philippine Presidential Unit Citation for action in the Philippines and the Campaign Silver Bands for New Guinea and Luzon, the unit was inactivated in January 1946. The unit was then redesigned in 1954 as the 535th Engineer Company (Light Equipment) and activated in Germany as part of the 11th Engineer Group.

In June 1969, the 535th was assigned to the 549th Engineer Battalion (Provisional) as part of the 130th Engineer Brigade. Throughout the next two decades, the company was assigned to the 565th Engineer Battalion, 7th Engineer Brigade, 7th Army Training Command in Grafenwoehr, Germany, and 563rd Engineer Battalion. In September 1977, the company was reorganized as a combat support equipment company. From 1985 to 1990, the company served under the 82nd Engineer Battalion. On Dec. 1, 1990, the 535th was returned to the 130th Engineer Brigade as part of the 237th Engineer Battalion. Soldiers from the unit served with both the 9th and 82nd Engineer Battalions from December 1990 to May 1991 during Operation Desert Shield and Desert Storm. On June 22, 1991, the 535th Engineer Company (CSE) became part of the 94th Engineer Combat Battalion (Heavy).

Task Force Eagle

On Dec. 7, 1995, the 535th was attached to the 16th Engineer Battalion forming Task Force Volturno in support of the 1st Armored Division. The company deployed to Bosnia-Herzegovina with the 16th Engineer Battalion on Dec. 14 during the initial phase of Task Force Eagle. On Dec. 19, the unit began the construction of all ramps and access roads to the Sava River Float Bridge Site.

While deployed for Operation Joint Endeavor, the 535th Engineer Company constructed several main roads in Tuzla, Bosnia-Herzegovina, supported the Turkish Brigade with the construction of a 4-kilometer patrol route through mined, mountainous terrain, constructed the Slavonski Brod PMP Float Bridge Site, and completed a major upgrade of Camp Angela. The company was responsible for building the first Unmanned Aerial Vehicle (UAV) Airstrip, as well as the Open Market that gave the previously warring factions a better opportunity to trade together. In all, the 535th was responsible for constructing

The 535th Engineer Company (CSE) augmented the 94th in horizontal work



or upgrading 56 kilometers of roadway and emplacing 75,000 cubic meters of gravel in support of Task Force Eagle from Dec. 14, 1995 to Nov. 21, 1996.

Task Force Hawk

The 535th added another accolade to its distinguished history when it deployed the only construction assets to Albania in April 1999 in support of Task Force Hawk. Augmented by a section of vertical engineers from the 94th Engineer Combat Battalion (Heavy), the platoon-sized element deployed by air to Rinas Airfield near Tirana with the initial force package.

The soldiers who served with this initial entry force displayed a versatility and proficiency that reflects the dynamic nature of the Engineer Regiment. Not only did they implement and maintain the first force protection measures for the other members of the task force, but also they also greatly improved the quagmire caused by spring rains to increase trafficability in and around the airfield.

Simultaneously, these construction engineers made numerous convoys to the forward operating base in Albania, transporting mission essential vehicles and weapons systems on their organic M920/870 Medium Equipment Transporters (METs). This task-organized engineer element provided a critical capability to the initial phase of Task Force Hawk. Their ability to deploy rapidly ensured construction engineer support during the personnel ramp-up at Rinas Airfield.

By mid-May, the remainder of the unit had arrived in Albania via the port of Brindisi, Italy, and began executing missions within 24 hours of arrival at the airfield. Within 48 hours of arrival, the company was fully mission-capable, having established a company life support area (LSA), a motor park, and a fully functioning organizational and direct support maintenance operation.

During their 2½ months of operations in support of Task Force Hawk, members of the 535th constructed nearly 5 miles of protective berms, filled thousands of Hesco Bastions and constructed more than 40 bunkers and guard towers to markedly increase force protection during the NATO conflict with Serbia. The company also acquired, transported and placed over 27,000 cubic meters of aggregate, and logged over 10,000 miles during convoys through rugged mountainous terrain.

Task Force Falcon

On June 2, 1999, the 535th Engineer Company (CSE) prepared for onward deployment to Kosovo via tactical convoy through Albania and into Macedonia. Less than 24

hours before their scheduled departure time, the company was notified that their equipment would be transported via a government contracted cargo ship from the port of Durres, Albania, to the port of Thessalonica, Greece.

Deploying onward from Albania to Greece to Macedonia to Kosovo, the Heavy Metal Warriors found that they were, once again, the only construction assets on the ground. Immediately upon their arrival at Camp Bondsteel on July 1, they established company operations and began construction of the only access road into the base camp from the nearest main supply route.

Serving in Kosovo in support of Task Force Falcon, the company has continued to improve the main road network throughout the camp. Elements of the company have also assisted with dust control, constructed the first facultative pond to provide an environmentally responsible means of sewage disposal, assisted maneuver forces from the 1st Infantry Division with clearing mined areas by hauling mine rollers, constructed the initial perimeter protective berm, and completed all of the earthwork for the camp's hospital.

The 535th Engineer Company continually demonstrates its flexibility, diversity and ability to accomplish a wide variety of missions. Upon the company's planned redeployment to Germany this winter, the Heavy Metal Warriors will conduct recovery and begin planning and training to conduct myriad troop construction projects throughout USAREUR in the summer of 2000. ■



Civilian Perspectives

Team Baltimore assists NATO

By Debi Horne, Public Affairs Specialist, Baltimore District, U.S. Army Corps of Engineers

After training at Fort Benning, Ga., and some waiting time at Europe District, Team Baltimore finally all assembled in the Balkans last month to begin the mission of providing adequate living quarters for the NATO peacekeeping mission.

Presently, 24 Corps employees make up this team, all from Baltimore except two from Rock Island and St. Paul Districts. The team's job is to provide quality assurance for the Brown & Root Logistical Services Contract for the building of two base camps that will house approximately 7,000 soldiers involved in the peacekeeping effort.

Although most of the military peacekeepers and the Corps volunteers now live in tents, some of the Corps personnel have more luxurious living conditions—wood structures overlooking barbed wire and concrete.

"We work, eat and live together," said one team member in an e-mail note to a colleague. "Nothing is sacred any more among us. Sleeping and bathroom habits are now public knowledge.

"We wear 'full battle rattle' all the time, even to the showers. It all weighs approximately 30 to 40 pounds and takes about 30 minutes to put on and take off."

The team is busy working on construction feasibility, siting and interior layout, the development of a master plan and real estate issues.

"Everyone is in good spirits although homesickness hits all of us at different times," added the team member.

"But being a cohesive team that gets along well helps. And a lot of joking keeps the environment healthy. The camaraderie that has developed has made this an experience I would not want to miss." 🇺🇸

POM training at Fort Benning

By Maria DeLaTorre, Baltimore District, U.S. Army Corps of Engineers

POM training was difficult, exhausting, challenging, and worth every minute. Our class had about 170 folks, divided into Alpha and Bravo Companies. They were primarily military, but we also had civilians—Red Cross, USACE, translators and contractors. My squad had 14 Corps of Engineers people, and we were divided between Alpha and Bravo companies.

I was in Bravo Company with a great group of folks; they had lots of enthusiasm and good senses of humor. The Army folks were wonderful, helpful with any questions we had, helped us with our gear, how to wear our boots and hats properly, etc.

We spent very long days, with an average of about

POM formation
bright and early at
Fort Benning



four hours of sleep per night, if we were lucky. The first half was lots of long lines for medical and dental exams, legal processing, Geneva Cards, etc. Lines at Wal-Mart on a weekend will now seem minor. We got classes on Kosovo and Bosnia, health, Law of War (rules of engagement, ethics, etc.), mines, booby-traps, sniper fire and person/luggage search, and we were issued our military clothing and equipment.

The Georgia sun (when the rain stopped) can be very hot when you are wearing a kevlar helmet and flak jacket. We did up-run-drop drills for sniper fire. (I'm up, see me run, I'm down.) Mind you, this is with helmet, vest, two canteens (one on each side) and a gas mask hanging on one side. You have to drop and roll—second thoughts do not come in to play. So, when you hit the ground you feel the canteens in your side and back and rocks at your knees and elbows. But it is odd how that all becomes secondary when you have to run to stay alive.

POM also taught us what to do if we encounter mines. The key word with mines is FREEZE! That means, "Stop in place and put any raised foot back in its previous position." They also taught us the word HALT!, which means, "I see or hear something, but it's not a mine."

Well, during one drill, someone spots a mine and yells HALT! instead of FREEZE! Before we even got to one knee, we heard an explosion, and we all hit the dirt because we thought incoming! Wrong. We were in a minefield. After that, just call us dead and pushing up daisies. It was funny, but it sure reinforced the deadliness of a wrong call. Better FREEZE and be wrong, then HALT and be dead.

We ate Meals-Ready-to-Eat (MREs) for a couple lunches. They are not too bad, and they came in handy.

Due to long days and little sleep, staying awake during classes became quite a challenge. When the lecturers were good it was easy, but get a dry lecture and people dropped like flies. The worst part is, your snoozing is quickly identified to the rest of the class, then you are asked to stand up and wake up.

One day I came close to falling asleep, but I survived. Then in came the MREs, and mine had a Jolly Rancher candy pack. They kept us awake! I will never take these candies for granted again. The next day, we scrounged to

see who had Jolly Rancher candy and would supply.

As the week proceeded, we were all busy with lines, admin work, trying to stay awake on four hours of sleep. Sometimes, the reality of the Balkans seemed far away. Then one day, during a Bosnia briefing, the lecturer started with a five-minute video on Bosnia—documentary footage of the bombings, deaths, refugees, exodus, children and people crying. The soundtrack was a ballad by Annie Lennox (formerly of the Eurythmics), which I believe is titled, "Tell Me Why." At the end, the video footage in-



Training included how to don a gas mask in 7 seconds

cludes the NATO troops, and Kosovar civilians hugging them, and children laughing.

Needless to say, many people in that room used tissues in those five minutes. It brings tears to my eyes just writing this. There was a deafening silence at the end. In that moment, we realized how lucky we are in this country, and we knew

why we were going to the Balkans. ■



Clint Anuszewski directed the BCCA at Camp Able Sentry

Much of the work in the BCCA involves coordinating work by Brown & Root Services, the firm contracted on behalf of U.S. Army Europe Deputy Chief of Staff for Logistics to meet the needs of soldiers in the Balkans Theater. Under the contract, Brown & Root provides the mess hall, temporary structures such as housing units, latrine maintenance, vector control and other services.

Anuszewski and the Baltimore team prepare designs, write statements of work, prepare independent government estimates and provide quality assurance.

In addition to base camp construction and master planning at CAS, the team supports the USACE contingent located at Camps Bondsteel and Monteith in Kosovo. "Our role is mainly helping with logistics and trying to procure supplies they can't get through their channels," Anuszewski said, adding that BCCA staffers have helped in numerous other efforts as needs arise. For example, he brought his geotechnical expertise to bear on the recent well-drilling operation at Bondsteel.

"We're not afraid to move out of our lane. The Corps has deployed the 'A-Team' here and the mindset is that we not only do the right thing, but we also do it right."

According to Anuszewski, "We at USACE believe in a totally integrated Army, with soldiers and civilians working side by side. As civilians, we're looking to fit in and be in the trenches with the Army in the field."

To this end, Anuszewski, like the other Corps volunteers, wears the battledress uniform and sleeps in a tent. "I'll move out of the tent when the soldiers are out of tents," he said. The BCCA is supporting the forward-deployed engineers at Camp Bondsteel in their commitment to have all soldiers in SEAhuts by Oct. 1.

"This has been an exciting time at Camp Able Sentry," Anuszewski said. "From the chaos here when I arrived, we're seeing real progress. Before too long, CAS will be a place soldiers really look forward to coming back through."

With dedicated Corps team members like Clint Anuszewski at CAS, 'Club Med' may actually emerge—or at least be the next best thing for U.S. troops in the brief time they call it home. ■

It's not Club Med, but ...

By Dana Finney, Public Affairs Officer, Engineering Research and Development Center, U.S. Army Corps of Engineers

"This is 'Club Med'," said Clint Anuszewski, winking as he takes in the 250 acres of Camp Able Sentry, or CAS, in Macedonia. While that may be a stretch, amenities have come a long way since CAS became the Receiving, Staging and Onward Movement site for Operation Joint Guardian in the Balkans. And conditions continue to improve, thanks to the combined efforts of military and civilian personnel working together.

Anuszewski is part of the Baltimore team operating the Base Camp Coordinating Agency (BCCA) at CAS. The BCCA implements the Corps' responsibilities as the Defense Department's designated Contract Construction Agent (CCA) for the Balkans.

"Force protection and life safety always have highest priority," Anuszewski said. "Whatever else is going on comes to a halt for those issues. But for the other quality-of-life troop support features where we can plan ahead, we have a master plan—and it's working!"

Anuszewski deployed in July from Baltimore District, where he has spent most of his 30-year career with the Corps. He worked the first 20 years as a geotechnical engineer and the past 10 in the district's hazardous, toxic, and radioactive waste program.

Humanitarian Assistance

Bringing back a school

By Dana Finney, Public Affairs Officer, Engineering Research and Development Center, U.S. Army Corps of Engineers

Remzije Bytyqi and her sisters will attend class in a bright, clean schoolroom this fall thanks to volunteers from the 9th Combat Engineer Battalion.

The girls recently joined 42 members of the 9th and people from the village of Mirostava in a cleaning day at the Dituria (“knowledge”) School. Closed since 1990, the school previously held class for some 300 students aged 7 to 14 years in this ethnic Albanian community.

“It is not really too bad for having sat empty all that time,” said SPC Jeffrey Rickard, engineer with the 9th. “It needs another coat of paint and some more cleaning, but it already looks a lot better than it did.”

Rickard, like most of the soldiers working at the school, volunteered to help on what was to have been a rare half-day off from duties at nearby Camp Bondsteel. His battalion “adopted” the Dituria School as part of the peacekeeping effort to get Kosovar children into classrooms this fall.

According to MAJ Joseph T. Hand, battalion operations officer, “With children in schools comes stability in the community, and with that comes safer conditions for the NATO forces.” He added that the Military Technical



Dituria school, where volunteers from the 9th Engineer Battalion cleaned and repaired the building

Agreement in Kosovo seeks to create an environment where children can prosper through education.

Hand organized the cleanup day and expected between 10 and 15 soldiers to help. With 42 soldiers volunteering and at least that many townspeople coming out to help, he split the group into teams to tackle the different jobs planned for that day.

One group of soldiers and villagers stripped two main-level classrooms, scrubbed the walls and painted. They cleaned and carefully set aside the same picture that decorated all the rooms—glass portraits of George Scanderbeg, a 15th century Albanian hero who briefly fended off the Ottomans. In the science room, a dirty human skeleton model lay in pieces.

Despite the dreary décor, workers were cheerful and upbeat. “I enjoy painting and carpentry, and that’s why I wanted to join an engineer battalion,” said SPC Jamie Johnson. “Today was a chance to do some of that here.”

Meanwhile, another work group repaired the front gate and perimeter fence. They cut out saplings and other scrub brush growing behind the school where children play. Next to that, in a weedy soccer field, volunteers pulled up rotted wooden goal posts and then crafted new ones.

“We built the new goal posts on a frame so they can move them around,” said SSgt James Ludwig, Air Force 52nd Civil Engineering Squadron (CES), attached to the 9th engineers.

No sooner did they finish than a soccer ball magically



Soldiers worked side by side with local Kosovars

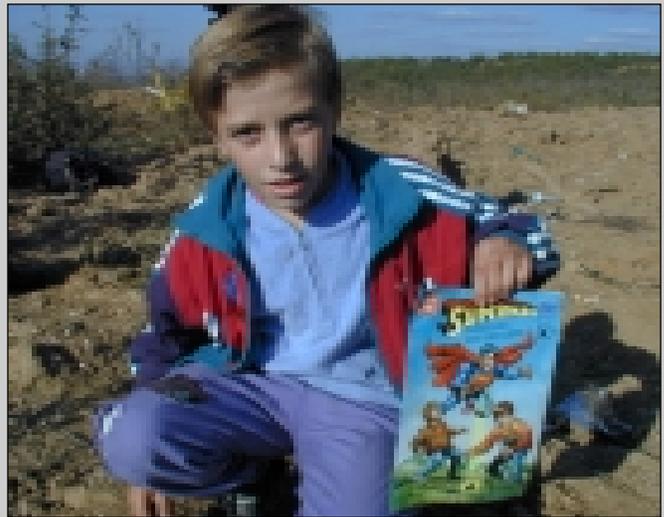
Mine awareness for children

By Dana Finney, Public Affairs Officer, Engineering Research and Development Center, U.S. Army Corps of Engineers

Kosovar children returning to school this fall will learn how to recognize and avoid land mines, unexploded ordnance and other dangerous artifacts of war.

The Mine Action Center at Camp Bondsteel put together a program of instruction that targets elementary through high school age children. "Young children are more likely than adults to find something because they're playing outside and exploring new places," said CPT Nathan Bond, with the 1st Infantry Division Engineer Brigade headquarters. Some munitions that are painted in bright colors for easy identification attract children's attention because they may appear to be toys, he said.

Engineers will travel to local schools and kick off the training once classes start Sept. 1. They will use materials such as posters and mine-awareness Superman comic books from international organizations that provide them free, including UNICEF and the United Nations Mine Awareness Center.



Superman comic books devoted to mine awareness, written in the Albanian and Serbian languages, were distributed in local villages

Instructors also will bring disarmed examples of mines and UXO to help students learn to recognize them. Training will include mine marking practices that flag unsafe areas as well as how to exit an accidentally entered minefield. ■



Children in the village had not been permitted inside the school for 9 years

appeared and an impromptu game broke out.

Back inside, electricians checked wiring and lights, keeping a tally of the number of light bulbs that needed replacing. Local children, including 8-year-old Remzije, joined SGT Eduardo Ruiz in washing the light covers.

"We pulled down a light and it said 'Made in USSR' in English," said SSgt Michael Frederick, 52nd CES. "Everything seems to be as old as the building. We'll only replace two or three out of six lights in the fixtures because the circuits won't be able to handle a full load."

Hand counted 120 fluorescent lights in the building

and agreed that only a fraction of those could be replaced because of the power draw on a weak local electrical grid.

Another team replaced broken windows with Plexiglas as a quick fix to keep out wind and snow this winter. "It's going to get cold here so the heaters also need to be cleaned out," said Rickard, nodding toward the small wood-burning stove in a corner. As the sole source of heat in classrooms, even clean, the units are grossly inadequate for the cold Balkan winters.

Another major challenge facing the villagers is the dependence on ancient wells for their water supply. "Water is a serious problem. We have to go down very far to reach the water in this well," said Fadid Beteche, cranking up a bucket of water to clean walls.

While the cleaning day saw great improvements, Army volunteers knew there would be limits to the help they could render. "We had to set reasonable expectations here," said MAJ Hand. "I couldn't tell the people 'we're going to fix your whole school'—that's a \$100,000 proposition. We're doing the best we can with limited resources and volunteer labor."

At the front gate, tired of washing light covers, Remzije wanted to be photographed with SPC Javier Varela, who had spent the afternoon on guard duty.

"From these kids' view, I don't know if it will matter that the school is clean and the walls are painted," Varela said. "I just remember from growing up in Chicago that the important thing is to be in school. If we helped get them back here learning something, that's all that really matters." ■

Repairing the Istok Prison

By SFC Bruce Carlson, Alpha Company, 94th Engineer Combat Battalion (Heavy)

Majestic mountains and fertile plains where Kosovo Albanian farmers work the land and tend their flocks surround Istok, Kosovo. In this small war-torn town near the Montenegrin and Serbian borders lies the Istok Prison, our destination for Operation Combined Warrior.

Starting from ground zero

In 1991, Serbian authorities ordered the building of a new prison able to house up to 500 prisoners. This was to be the model prison, including dining facilities, a gymnasium and theaters. It set new standards for the penal system in Kosovo until 1999, when NATO smart bombs slammed into the roofs of four buildings, destroying them completely and causing severe damage to nearby buildings. Why would NATO bomb a prison? The answer comes from NATO intelligence that the Serbian Military was using the Istok Prison complex as a training camp for their Special Forces.

June 1999 saw an end to the hostilities in Kosovo, and thus a time for rebuilding. With the United Nations civil authorities trying to maintain law and order, the makeshift

prisons soon became overcrowded. The United Nations Mission in Kosovo began looking at the feasibility of rebuilding the prison at Istok. On Aug. 23 the mission came to Alpha Company of the 94th Engineer Combat Battalion (Heavy).

Greeted by the leader of the purposed KFOR team (2LT Smith of the British Royal Engineers) our recon team began compiling the needed data for restoration of the prison.

A recon of the prison revealed the extent of damage



A joint NATO team made repairs to return the prison to use

inflicted on Istok Prison, and became evident that more than NATO bombing had damaged these facilities. Small arms fire and Rocket Propelled Grenade blasts scarred the exterior of every building as well as the interior of each hallway, cell and administrative room.

On Aug. 25 a team of 13 American soldiers departed Camp Bondsteel and headed 120 kilometers northwest to the town of Istok and the prison that lay 6 kilometers further north. An engineer team composed of four carpenters (51B), two plumbers (51K), two electricians (51R), a welder (44B), cook (92G), mechanic (63B), commo sergeant (31U) and project NCOIC (51H4X). The remainder of the KFOR team consisted of twenty-three British soldiers, five Canadians and five Gurkhas (Nepalese soldiers serving in the British Army). Upon reaching the prison they began



Repairs included bringing the heating system back up to operational capacity

work immediately, setting priorities and crews to work on the three phases of the construction.

Restoring light and power

Our first concern was the lighting of the building, referred to as Cellblock 9. The wiring for Cellblock 9 had been completely stripped by local landowners trying to rebuild their own homes and property. Since the local economy had not yet been established, we were forced to salvage all materials needed for this project from all other buildings throughout the prison complex. One hundred fluorescent lights and eighty-eight incandescent light fixtures were recovered and reworked to provide the lighting for halls, cells and admin areas. This was accomplished by six general electricians, two from each of the supporting nations, led by SSG Nicoells of the British Royal Engineers.

Since the prison main power plant had been directly hit and completely destroyed by a 500-pound bomb, the UN brought in two 40-kilowatt generators to provide the prime power to energize the distribution box to Cellblock 9. With the distribution box now energized, the electricians went to work sorting out the circuitry for lights, outlets and power grids to the different cells. This was all accomplished in four very long days.

Restoring heat

The second phase of making the building functional by Sept. 3 was the ability to restore the domestic hot water and radiant heating systems. Once again the soldiers searched the ruins for the needed piping and radiators for those systems. Led by WO2 Dawson of the Royal Engineers, four soldiers cut and thread the two-inch galvanized pipe for the hot water system. Working in a 6-by-4-foot maintenance hole, the work proved tedious and hot.

The piping for the heating system required yet more resourcefulness. A pressure manifold constructed out of 4-inch welded steel pipe was constructed within the same confines as the maintenance hole, only now the piping for



Brickmasons worked on the prison exterior

the hot water system confined the area even more. The hot water source for both personal hygiene and heating will come from a 1000-BTU self-contained heating plant, which at this writing was still six weeks away from delivery. This, along with additional piping, will be installed by other UN forces to increase the compound's water pressure.

Restoring security

Security of the individual cells and wings became a new challenge, since most had been forced open by prisoners trying to escape the onslaught of the Serbian Police Force. Door jams were ripped off the walls, and window bars dangled freely from rocket blasts. To secure the 88 cell doors we had to reconstruct the frames by cutting and chiseling away the splinters left behind and replace them with new angled iron inserts for reinforcement.

This was just the start. Next we had to be able to lock the doors, and for this we devised a dead bolt system out of angle iron and steel rods. With the cell doors now securable the task of filling in bullet holes and rocket damage took priority. No less than twenty holes covered every surface within the cellblock. Most were the size of 50 caliber rounds and softball size rocket holes; in some cases these rounds knocked out entire cell windows and created holes two to three feet across. For most holes, simple low aggregate, cement mixture was used to fill the void and then cover over with a mortar plaster mix. The larger holes required the removal of remaining block work and the mortaring of new blocks and bricking into place.

We soon discovered the Gurkhas soldiers to be excellent "brickies," who made quick work of the brick replacement on the outside of the cellblock. All that remained for finishing the security of the cellblock was the replacement of forty window bars and twenty guard windows. The window bars had been damaged by small arms fire, which ripped through them cutting them in half. These were cut out and repaired by welding pieces of bars from other buildings onto the stubs that remained. One-inch Plexiglas located in other cellblocks was taken and cut to fit the windows for the guard tower in Cellblock 9. A crew of six carpenters led by SFC Carlson accomplished

this phase of the mission in five days.

Supporting roles

Living in tents and showering with buckets sounds like a comfortable lifestyle, but what really made our life easy was the outstanding support we received from our cooks (one British and one American). The two chefs combined to deliver an international smorgasbord for breakfast and scoff (dinner). Beans for breakfast was now as common of a sight for the Americans as Coke and a doughnut were for the British. The British also loved our variety pack brown bag lunches (MREs)! During evening meals the conversation was not about the days work, but rather sorting the differences between British and American customs and sayings—not to mention spellings (like *colour*).

As we were 120 kilometers away from our base camp, state-of-the art communication was a must. For this, our communication expert, SGT Gilfillan, used the TACSAT system, which was new to engineer soldiers. This provided clear and timely communications between the main base camp and us. SGT Gilfillan also aided the British in improving their comms as well.

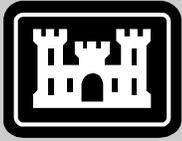
The international KFOR mission at Istok Prison has afforded the soldiers of Operation Combined Warrior valuable experience in training, international relations and



Drilling a hole to install an additional heating pipe

joint cooperation between nations. It not only enhanced skills but also allowed for cross training among different nations and backgrounds. The mission at Istok also helped clarify our purpose for being in Kosovo by exposing soldiers to the damage and suffering of thousands of Kosovo Albanian families trying to regain the lives they left behind and the lands destroyed by war and hatred.

The gratitude shown to us by the people of Kosovo will not be soon forgotten nor will the friendship of British, Canadian and Gurkha soldiers. This mission has proven the need for Army Engineers not only as combat soldiers but also as humanitarian nation builders for those oppressed by the ravages of war. ■



**US Army Corps
of Engineers®
Europe District**

Engineering in Europe is an unofficial publication of the U.S. Army Corps of Engineers, Europe District, under AR 360-81. Method of reproduction: photo-offset, press run 2,500. Views and opinions expressed are not necessarily those of Department of the Army. A full-color version may be viewed on the Europe District Internet website at www.nau.usace.army.mil.

Address mail to: Europe District, CMR 410 Box 1, APO AE 09096

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it took a team: Capturing the Engineers' Story

This special report on the historic contributions of the engineers in support of NATO peacekeeping Operation Joint Guardian in the Balkans is a direct result of the collaboration of Engineer Regiment and its Public Affairs Officers from the first days of the operation to ensure this story was told.

Special thanks to the engineer leadership at the Corps of Engineers, U.S. Army, Europe and the 1st Infantry Division Engineer Brigade who supported embedding a public affairs with the BCCA during base camp set up and follow on public affairs efforts:

Chief of Engineers LTG Joe Ballard
 USAREUR DCSENG BG Steven Hawkins
 NAD Commander BG Stephen Rhoades
 11D Engineer Brigade Commander COL Robert McClure
 Europe District Commander COL Michael Pelkey
 ERDC Commander COL Robin Cababa
 Philadelphia District Commander LTC Debra Lewis
 Baltimore District Commander COL Bruce Berwick
 Former NAD Commander MG Jerry Sinn
 Former Europe District Commander COL Michael Barry

Thanks also to the many Public Affairs Officers who cooperated across organizational and unit boundaries to capture the whole story as it unfolded:

Dana Finney ERDC
 Torrie McAllister Europe District
 CPT Stephanie Arnold 94th Engineer Battalion
 LTC Ed Voigt Philadelphia District
 George Halford Headquarters, USACE
 Joan Kibler Transatlantic Programs Center
 Billy Bridges ERDC
 Lucy Lather Baltimore District
 Brian Driver USAREUR DCSENG

Finally, thanks to the many engineer authors who took time to write their stories while the memories were still fresh!

Regimental PAO wins Award

Dana Finney, who deployed to Kosovo to publicize the Engineer Regiment, was honored with the Locke. L. Mouton Award for Excellence in Public Affairs with support of fellow public affairs officers Torrie McAllister of Europe District and George Halford at Corps' headquarters.

