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ARMY SUSTAINMENT

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Logistics Convoy Security

24th BSB Operations in Afghanistan
The 49th Transportation Battalion Prepares to Deploy
A Case for Change in the Management of Class V

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Cover: In the current operating environment, sustainment units often provide their own security escorts. Prior to its deployment to Afghanistan, the 49th Transportation Battalion (Movement Control) prepared its units to perform a convoy security mission. The articles on pages **32** and **40** describe this training. The deployment of the 24th Brigade Support Battalion (BSB), 170th Infantry Brigade Combat Team, who conducted logistics convoy security in theater, is also highlighted in this issue. The articles beginning on pages **4** through **17** highlight the sustainment operations conducted by the 24th BSB in Afghanistan. On the cover, a gunner with a security platoon from the 24th BSB prepares an M2 .50-caliber machinegun for a 215-mile supply run from Camp Deh Dadi II to Forward Operating Base Griffin, Afghanistan. *(Photo by SGT Christopher Klutts)*



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FOCUS

CASCOM—A Key Player in the Network Integration Evaluation Process

BY MAJOR GENERAL LARRY D. WYCHE

The Army Combined Arms Support Command (CASCOM) plays a major role in the Army's Network Integration Evaluation (NIE) exercises. It also has an integral part in the Army Agile Process Life Cycle.

Twice a year, the Brigade Modernization Command (BMC) at Fort Bliss, Texas, and White Sands Missile Range, New Mexico, conducts a NIE exercise. Many believe that NIE exercises are stand-alone events, but in reality, they are only one phase of the much larger Army Agile Process Life Cycle.

The Army Agile Process Life Cycle is a 15-month, seven-phase process that focuses on meeting identified and prioritized capability gaps by integrating emerging technological (materiel) solutions (both network and nonnetwork) and nonmateriel solutions. It also evaluates three types of capability solutions: type I, acquisition programs (for systems ready for testing); type II, developing capabilities (for systems under evaluation); and type III, emerging capabilities (for next-generation warfighting technologies). CASCOM is an active participant and provides support throughout the entire process.

Phase 0 begins the process under the lead of the Army Training and Doctrine Command (TRADOC), which defines gaps and requirements in the current force. CASCOM representatives serve as members of an integrated process team (IPT) that identifies and prioritizes near-term capability gaps based on Army G–3/5/7 objectives, focus areas, and test priorities. Our objectives are to ensure that near-term gaps in sustainment and operational energy are identified, adequately considered, and prioritized in this process. During this phase, CASCOM begins to analyze the sustainment factors to consider during the operational assessment. This will ultimately determine the sustainment lifecycle of a materiel solution.

The Assistant Secretary of the Army for Acquisition, Logistics, and Technology (ASA[ALT]) is the lead for Phase I and solicits potential solutions from Government and industry for the requirements identified in Phase 0. CASCOM assists the ASA(ALT) in preparing solicitation packages for industry vendors submitting sustainment and operational energy solutions.

The Army Materiel Command (AMC) and CASCOM ensure that the solicitation packages provide information, such as software sustainment and supportability, the maintenance concept, documentation of system dependencies, the concept for platform integration, and the availability of technical documentation for hardware and software, which can be used to assess the total impact of sustainment. Once the submission period ends, each potential candidate's solution is reviewed by the stakeholders from the ASA(ALT), TRADOC, the Army Test and Evaluation Command (ATEC), AMC, and the Army staff, who constitute the candidate selection panel. CASCOM provides the TRADOC representatives who serve as voting panel members during the selection process. The product of this phase is a rank-ordered and categorized list of potential solutions, linked to the near-term capability gaps validated in Phase 0.



Once all submissions are ranked and categorized, ATEC and the ASA(ALT) share lead agency responsibilities for Phase II, candidate assessment. This phase determines the viability of potential solutions for NIE testing and evaluation.

ATEC is responsible for narrowing all type I solutions and ASA(ALT) for narrowing type II and type III solutions. CASCOM works with both headquarters and AMC's laboratories in weekly planning meetings to screen and assess potential solutions for sustainability and operational energy.

Phase III is NIE preparation, where the BMC works with various stakeholders to identify the final manning, equipping, and training requirements of the evaluation unit. In this phase, CASCOM participates in weekly coordination and planning meetings, conferences, and workshops for the development of final test plans, vulnerably assessments, and the DOTMLPF [doctrine, organization, training, materiel, leadership and education, personnel, and facilities] collection plan and interoperability tests. Also, we review and validate type I systems training materials and vendor type II and III systems new-equipment training materials to ensure they are adequate for the NIE test and evaluation event.

Phase IV is the integration rehearsal under the supervision of the ASA(ALT) with close coordination from ATEC and BMC. The systems and concepts go through a series of exercises to confirm their performance and interoperability readiness to enter the NIE. This is primarily a risk reduction event to ensure technological readiness and interoperability. During this phase, CASCOM deploys operational controllers, analysts and capability developers (six to eight personnel on average) to support the evaluation of the sustainment and operational energy capabilities and systems for which it is assigned responsibility. Personnel attend training conducted by BMC to ensure that they understand the requirements and expectations for conducting the NIE test and evaluation event.

Phase V is the actual NIE exercise. BMC leads the operational assessment of the type II and III systems. The CASCOM NIE support team deployed during Phase IV remains through the completion of the evaluation event. The team deploys to the field with the testing unit and observes, evaluates and collects data on the systems' performance in an operational context.

The CASCOM assessment includes Soldier recommendations on systems and concepts and DOTMLPF changes required to integrate those systems and concepts. The capability developers with the CASCOM team also conduct a holistic DOTMLPF assessment of impacts to the existing brigade support structure if systems were to be fielded. This assessment also includes key sustainment factors (such as reliability, availability, maintainability, transportation, system dependencies, and integration) that allow CASCOM to assess a total cost of ownership for a materiel solution. This ensures that the Army staff has visibility of both procurement and sustainment costs before making implementation decisions.

Following the evaluation, the Army staff takes the lead in Phase VI to develop an implementation plan based on the results of the NIE exercise. Once TRADOC receives the BMC DOTMLPF Recommendations Report, each center of excellence, including CASCOM, reviews and adds their assessments. Once finalized, TRADOC provides the DOTMLPF Implementation Recommendations Report to the TRADOC commander for approval. CASCOM provides input to BMC for developing the portions of the report dealing with the systems evaluated and provides any additional sustainment observations during the TRADOC review.

Although CASCOM's support for a single NIE process is already substantial, it is important to remember that these exercises are conducted semiannually. In reality, CASCOM is supporting three NIEs concurrently but in different phases. While the actual test and evaluation exercise (Phase V) is ongoing for one NIE, the next NIE is already in the detailed planning stages and a third iteration is in the gaps determination process.

CASCOM's involvement in NIE exercises and the overall Army Agile Process Life Cycle ensures that any recommendation that is ultimately approved for implementation is sustainable or the impact on sustainment and operational energy is well defined as we build the future force.

MAJOR GENERAL LARRY D. WYCHE IS THE COMMANDING GENERAL OF THE ARMY COMBINED ARMS SUPPORT COMMAND AND SUSTAINMENT CENTER OF EXCELLENCE AT FORT LEE, VIRGINIA.

LINES OF COMMUNICATION

Focus on Proper Electrical Equipment Use

In the May–June issue of *Army Sustainment*, there is an article titled "The Three Most Common Electrical Safety Issues in Deployed Environments." It is a good article, but I believe the author may have missed the main causal factor for the fires and problems of using surge strips in deployed locations.

While some fires may be caused by thin or loose items in the strip, more often it is the improper use of these items that causes the fires. The Occupational Safety and Health Administration (OSHA) states that equipment needs to be used as the manufacturer intended. These surge strips are not designed to be used for the "multiple high amperage" items that the writer mentions in his article. They are intended for use with multiple low amperage items most commonly found in office areas, such as computers, monitors, printers, and fans.

OSHA refers to those little devices as "portable power taps." (They are not true surge suppressors in most cases.) The devices used with them cannot exceed the amperage rating for the device or fires can result.

I believe that the writer came to the wrong conclusion in the area of portable power taps. Being more vigilant about promoting proper use will probably reduce injuries and accidents better than focusing on who makes them (China or the United States).

—Barry W. Simmonds
St. Paul Minnesota

The Road to Sayed: Lessons Learned From a Recovery Operation in Northern Afghanistan

BY CAPTAIN ANDREW J. FAIR AND FIRST LIEUTENANT PHILIP MESSINA

As we pushed our column of four mine-resistant ambush-protected (MRAP) all-terrain vehicle (M–ATV) gun trucks, two wreckers, and an M916 line-haul truck with a flatbed trailer closer to our objective, wheels were skating dangerously close to the sheer dropoffs. The road seemed barely wide enough for the M–ATVs, and one could not help but wonder how the MaxxPro MRAP recovery vehicle (MRV) and heavy expanded-mobility tactical truck (HEMTT) wrecker were faring. As we continued on, cutting deeper into a moonscape land of hills, valleys, narrow wadis, and dry creeks that verged on being considered small canyons, doubts about the feasibility of reaching the objective lingered in each Soldier's mind.

The road to Sayed is little more than a goat trail, a trading route likely used for hundreds of years if not longer. Barely improved, its continued use is indicated by the fact that it is almost inexplicably found on contemporary military maps, including those loaded onto Blue Force Tracker. Generations of use have worn the trail deep into the limestone hills that dominate the Sayed landscape, and wind and water erosion has threatened what little progress has been made in improving the surface.

MRAP Rollover

In August 2011, an RG–31 MRAP in a tactical patrol conducting battlefield circulation through the remote Sayed District west of the town of Sar-e-Pol drove up the steep rock face alongside the narrow trail and rolled over. The vehicle plummeted down a steep slope and settled some 25 meters below in a ditch that ran parallel to the narrow valley.

The patrol had been on the road for nearly 10 hours as it slowly worked its way back toward its headquarters in Mazar-e-Sharif. Possibly weary from the long hours on the road, the driver of the RG–31 likely overcorrected in avoiding potholes; his left front wheel caught the limestone wall along the road and caused the vehicle to tip over.

The MRAP completed two full flips before it became wedged in the ditch below, resting on its passenger side. A trail of debris and Common Remotely Operated Weapons Station components littered the gouged earth above.

Thanks to the fundamentals of vehicle safety, all four crewmembers walked away—they had all been wearing their seatbelts and Kevlar helmets.

Seeking Help for Recovery

The patrol team members secured the site, called for the assistance of locally stationed subordinate units, and relayed the situation to their higher headquarters at Camp Marmal, just outside of Mazar-e-Sharif in northern Afghanistan. Since the supporting task force headquarters had limited logistics capability in theater, it notified the 170th Infantry Brigade Combat Team of the incident; the brigade then activated its area recovery plan. B Company (Field Maintenance), 24th Brigade Support Battalion (BSB), received the mission at approximately 1100 hours.

Meanwhile, the patrol team on the ground in Sayed District was looking at what seemed to be a lost cause. With its nose dug deep into the packed earth, the 11-ton vehicle was wedged into a narrow ditch 25 meters below the road and 15 meters or so above the valley floor. The nearest improved road was approximately 10 miles away. The valley itself was almost unnavigable, crisscrossed by ditches and shallow wadis. The chances of recovering this expensive piece of equipment appeared slim; the dangers of staying on site for hours, if not days, became somewhat higher.

After inventorying the on-hand demolition materials and determining that he did not have nearly enough C4 to blast the vehicle in place, the onsite commander called for an airstrike. The call was denied; recovery help was already on the way.

MRAP Recovery Challenges

The use of MRAP vehicles in the recent Iraq and Afghanistan wars has led to a number of problems for recovery teams. The size and weight of MRAPs mean that they do not fit readily within the pre-9/11 Army's vehicle recovery procedures. MRAPs were too heavy to be lifted by a HEMTT's crane and could not to be reached by the M88A1 or M88A2 recovery vehicles in many locations where they commonly operated.

To meet this new demand, the Army and Marine Corps turned to industry to develop a solution. In the meantime, recovery crews learned to adapt, overcome, and improvise using the M88 and the HEMTT. In both Iraq and Afghanistan, the venerable M984 HEMTT wrecker became the go-to system for combat vehicle recovery. HEMTT teams often worked in pairs to enhance their capabilities. HEMTTs have been regularly employed alongside a variety of supporting systems, including the heavy equipment transporter and the smaller interim Stryker recovery system, which was designed to be used with Strykers but otherwise operates like a heavy equipment transporter.



B Company's recovery team conducts an initial survey of the recovery site of a rolled RG–31 MRAP.

Developing a Recovery Plan

In the remote valley in Sayed, the onsite commander and the lieutenant leading the security detail both assumed that the RG–31 could not be recovered. In truth, had a specialist with the additional skill identifier H8 (wheeled vehicle recovery) been on the road with them, he probably would have come to the same conclusion. A few of the Soldiers who later arrived on the scene to help secure the site had maintenance backgrounds and concurred because of the difficulty of the road into the recovery site and the challenging nature of the site itself. They believed that it was highly unlikely that a recovery team would ever make it to them. Even if a recovery team did make it to the site and managed to extract the RG–31, the task of hauling it out of the valley seemed impossible.

Back at Camp Deh Dadi II, west of Mazar-e-Sharif, where the 24th BSB was headquartered, B Company was preparing its on-call recovery team (conducting precombat checks and inspections and rehearsals) for the mission and gathering intelligence. The battalion S–2 shop used satellite imagery tools such as Google Maps (Secret Internet Protocol Router Network version), the Tactical Ground Reporting System, and overhead stills of the recovery site captured by an unmanned aircraft system to develop a thorough route reconnaissance. This aided the recovery team in planning its operation.

Battalion leaders could see that the vehicle was located far off the road and decided to take two recovery vehicles, an MRV and an M984 HEMTT. The road to the recovery site west of Sar-e-Pol would be extremely challenging and possibly push the limits of the heavy recovery vehicles. Planners considered using a recently fielded interim Stryker recovery system to help haul out the RG–31. However, the route reconnaissance helped the battalion and company leaders determine that the

MaxxPro MRV Operations in Afghanistan

In May 2011, units across Regional Command North in Afghanistan received their first MaxxPro MRAP recovery vehicles (MRVs), which were fielded in conjunction with an 80-hour block of instruction for recovery crews. The MRV is a massive vehicle with considerable capability, and experience in the field quickly demonstrated the unmatched potential of the MRV's lifting and towing capability. However, some H8-qualified personnel expressed reservations about the vehicles' utility in some of Afghanistan's more austere terrain.

Developed based on an operational needs statement derived from combat lessons demonstrating the need for a vehicle with improved lifting and towing capability over the HEMTT, as well as improved MRAP crew survivability, the MRV was designed specifically to handle MRAP-class up-armored vehicles and any other wheeled vehicles in the Army or Marine Corps fleets, including Strykers and light armored vehicle (LAV)–25s.

Built around a 30-ton lifting boom, the business end of the MRV also includes an impressive set of 25-ton recovery winches and a 50-ton drag winch. Powered by an International DT 9.3-liter, 375-horsepower engine, the MRV weighs roughly 58,200 pounds, giving it an optimum power-to-weight ratio of 1 to 155.2 compared to the HEMTT's 1 to 77.6.

The MRV's wheelbase, an early concern for recovery crews, spans 408 inches between front and rear axles, with only 10 inches of differential ground clearance, making the possibility for bottoming out on uneven terrain seem high. However, for highway operations supporting logistics convoys and route clearance packages along Afghanistan's arterial lines of communication, where improvised explosive device strikes have been a constant threat, nothing could feasibly match the capability and survivability of the MRV.

interim Stryker recovery system was too long to make some of the hard turns, so the planners opted for the less capable but more maneuverable M916 truck with a lowboy trailer.

Mission Analysis

The hasty mission analysis identified a handful of concerns. The first was security, which would be aided by the presence of various U.S. combat units in the vicinity and the fact that the patrol element had a cordon around the rollover site. The next was fuel consumption, as the time and distance factors would potentially strain the capacity of the M–ATV's fuel tank. Third was life support, since the mission likely would require more than 1 day. Last was communication because the unit lacked the high frequency radios that would allow communication across such a long distance.

En route security would be provided organically by the 24th BSB, which operated a number of convoy security platoons to support the battalion's operations. Added care was advised, however, because the route between the towns of Shirbirgan and Sar-e-Pol was an insurgent hotspot. (The Swedish units that operated in the area had reported multiple troops in contact.)

B Company had a standing quick reaction force (QRF) to serve as the security detail for any unforeseen recovery missions. However, at the time of the recovery call, half the QRF was dedicated to a force protection mission supporting a military transition team at Camp White Horse in Mazar-e-Sharif. As such, the leaders of B Company had to request augmentation from A Company, 24th BSB.

To meet refueling requirements, an M978 fuel tanker was added to the task organization. This tanker would be dropped off at a Swedish provincial reconstruction team base in Shirbirgan. The same base would provide life support for the recovery mission as required.

The battalion tactical operations center coordinated with a supported task force and the Swedes to identify all radio frequency and Blue Force Tracker roles to ensure that the mission commander had all of the points of contact he needed. Blue Force Tracker text would be the primary means for communicating for much of the operation.

In addition to providing two additional gun trucks (M–ATVs), A Company also provided the M978 HEMTT fueler and an M916 tractor with a lowboy trailer.

The Road to Sayed

After conducting hasty rehearsals and a patrol briefing for all crews, the consolidated recovery mission, consisting of four gun trucks (three M–ATVs and one RG–33 MRAP), two recovery vehicles (a HEMTT wrecker and an MRV), a HEMTT fuel truck, and the M916 tractor with trailer, pushed out at 1600 hours under command of the B Company commander. Concerned about the possibility of a "no go" call on site, which would potentially lead to millions of dollars of Army property being given the "JDAM treatment" (destroyed in place using joint direct attack munitions), the 24th BSB commander had requested that a company commander personally lead the mission, even though recovery and QRF missions are traditionally led by lieutenants.

The B Company commander was a seasoned Ordnance (now Logistics) officer with combat experience in Iraq,



Weighing more than 58,000 pounds, the mine-resistant ambush-protected (MRAP) recovery vehicle (MRV) spans 34 feet between its front and rear axles. Its enormous size made it difficult to drive the vehicle on the roads to get to an MRAP rollover site near a remote road in Afghanistan. The MRV that was used in the recovery mission did not have the "rocket-propelled grenade net" fixed to the cab. With this attachment, the MRV would not have been able to fit on the narrow trail.

including recovery missions. Along with the company commander, the B Company security element noncommissioned officer-in-charge (NCOIC), a senior H8-qualified mechanic, would lead the dismounted element on the objective, while a pair of recovery NCOs commanded the HEMTT wrecker and MRV.

Using the free text capability on its Blue Force Tracker, the recovery team immediately established direct communication with the combat element guarding the recovery site some 6 hours away. The recovery team provided real-time guidance and successful en route coordination that allowed it to continue to develop its plans as it made the long journey toward Sayed District.

As the patrol advanced, it was able to better assess the terrain based on updates from the onsite security elements. This led both units to agree that the risk of accident inherent in a recovery effort during the hours of darkness would far outweigh the tactical risk to the combat elements securing the site for an additional day.

The 24th BSB team made the precoordinated stop at the Swedish provincial reconstruction team base in Shirbirgan just before sunset. There the HEMTT fueler would be staged for the remainder of the effort. The gun truck and wrecker crews were placed into a rest cycle for a predawn departure. The commander's intent was to link up with a small escort team at dawn in Sar-e-Pol, an hour to the south and only 10 miles from the objective.

The team set out before dawn, travelling south from Shirbirgan to Sar-e-Pol. At Sar-e-Pol, the recovery team linked up with a pair of gun trucks from the supported task force and followed them to the recovery site. The 10-mile trek from Sar-e-Pol had appeared challenging on imagery, but the reality of the road proved to be even worse. High hills, sharp turns, deep dropoffs, and narrow passages made for a slow and arduous journey.

Going in, the biggest concern had been the longest



After hours of attempting more delicate procedures to remove the vehicle, the recovery team resorts to pulling the RG–31 from the ditch using a heavy expanded-mobility tactical truck's winch and a 60-ton snatch block.

vehicle, the M916. However, in practice, the M916 was not the problem; the MRV was. Struggling on many of the hills, the MRVs International DT engine showed its limitations. The vehicle also took a beating as it hit repeated dips and potholes, bottoming out numerous times. The crew described the ride as being somewhat reminiscent of a boxing match—they just kept taking hits. It all nearly came to a dramatic halt when the MRV failed five times to surmount a steep hill. Finally, after a running start, the MRV cleared the crest and rocketed over the far side. The mission continued.

"Sure We Will"

Upon arrival at the recovery site, the recovery team linked up with the ground command element, discussed security, and then discussed their plan of action for extracting the vehicle. "Do you really think you can recover it?" the onsite commander asked. "Sure we will," the recovery team commander responded, not bothering to add that getting it out of the valley would possibly be the biggest challenge.

It was immediately evident that the RG–31 would not be able to travel safely out of Sayed on the back of a flat-bed trailer. This meant it had to be recovered in good enough condition to be towed behind the HEMTT or MRV. The vehicle had extensive damage, but although the front axle was bent, the rear axle appeared to be intact. The team conducted a 360-degree assessment of the vehicle, evaluated various connection points, and then developed an initial course of action.

The basic plan called for using the MRV's boom to lift the RG–31 out of the ditch where it was wedged, while the HEMTT winched it forward from a lower position. They would then work it laterally along the hillside until it eventually made it back onto the road. The plan may very well have worked, but the team never got a chance to try.

The MRV suffered a total power takeoff failure, leaving anything attached to the internal hydraulics system, including the lifting boom, inoperable. [Power takeoff refers to using power from an operating power source, such as a running engine, to operate an attachment, such as the MRV's boom.] Rather than lifting the RG–31 out of its trap, the MRV became a 29-ton roadblock, guarding the hill against the meandering trail of herders and nomads who passed by at frequent intervals.

Plan B

Without the benefit of the MRV, the recovery team hooked up the HEMTT to see what could be achieved with that asset alone. The original plan was modified to use the HEMTT's drag winch to pull the RG–31 up and out of the ditch along the side of the road. The HEMTT was powerful enough to pull the RG–31 up the incline. However, the HEMTT's angle above the ditch created a complex geometric problem; the mechanical force of the winch served only to dig the RG–31 deeper and deeper into the earth, thus increasing resistance and risking severe damage to the RG–31. After attempting to use a variety of hook-up points, a process that took hours, the RG–31 had moved perhaps 5 meters of a required 50.

Plan C

Into the valley went the HEMTT. The team NCOIC, an H8-qualified sergeant first class with 17 years of experience, determined that towing from a lower angle would negate the RG–31's inclination to dig in. Getting the HEMTT in place took some careful driving and a good amount of time. Operating now in a mid-morning sun that was driving temperatures well above 100 degrees, the only good thing was the arrival of a pair of Apache attack helicopters to provide aerial weapons coverage.

The first efforts to drag the RG–31 from a low angle showed some progress, but the truck was still dug deeply into the ground. The recovery crews relented and pulled out their "ace in the hole," the 60-ton snatch block.

Although the snatch block was certain to give the HEMTT enough mechanical force to winch the RG–31 free, the recovery team was concerned about damaging the truck in the process. Having deemed use of the flatbed inadvisable given the terrain, the only legitimate hope of getting the RG–31 out of the valley was to tow it behind the HEMTT. For that to happen, the rear axle had to be preserved. (The front axle was already snapped in half and the right-front tire folded under the chassis.)

To minimize the risk of added structural damage, the team hooked up the towing winch high on the RG–31, hoping to roll the truck out of the ditch and onto the valley floor. This still risked bending or breaking the rear axle; however, the chance of the vehicle landing upright was almost as good. Time and the tools available left little in the way of alternatives.

The RG–31 was hooked up to the HEMTT, with the drag winch cable looped through the snatch block theoretically doubling the winching capacity. Slowly and steadily, the HEMTT pulled on the RG–31. Rock and soil began to shake loose, and the MRAP began to move forward, breeching the top of the ditch in a plume of dust as hundreds of pounds of earth gave way. Cresting the ditch, the RG–31 pitched nose down and slid into the valley, surprisingly enough still on its side.

The recovery team next deliberately tipped the RG–31 as gently as possible, using both the HEMTT and the winch of an M–ATV to stabilize it. Resting awkwardly on 3 wheels, the RG–31 was at last free. The mechanics of hooking it up to the HEMTT and getting it out of the valley would take another hour or so, but the balance of the problem had been overcome. With a final low-level pass from the guardian Apaches, the patrol would soon be on the road away from Sayed and toward Sar-e-Pol.

The reliability of the MRV, like many new Army systems, came into question. Weeks later, after hours of troubleshooting by Army mechanics and field service representatives, the source of the power takeoff failure was found to be a simple fuse, which had been knocked loose in the rough drive into the Sayed valley.

The importance of a backup plan in recovery operations cannot be overemphasized because unexpected factors nearly always come into play during a dedicated recovery mission. Recovery plans, like any other operation, should be categorized into primary, alternate, contingency, and emergency courses of action.

Intelligence preparation of the battlefield, a factor that is not often emphasized with sustainment operations, is more important than ever in a recovery operation. If limited assets are available, intelligence preparation of the battlefield is that much more critical because it can help commanders make decisions with minimum risk.

Assigning H8-qualified personnel to a recovery section is important, but equally important is practical field training in a complex and realistic environment that replicates the chaos and unexpected nature of combat operations. B Company's crews were lucky enough to receive a very high level of predeployment training while at the Hohenfels Training Area in Germany. The recovery experiences there, as well as the institutional experience brought by the NCOIC onsite, proved invaluable. Throughout combat operations in Regional Command North, the 24th BSB also benefited from individual and like-vehicle training for all vehicle crews conducting operations outside the wire.

Finally, the Warrior Ethos, a never quit, never accept defeat mentality is absolutely vital. Recovery operations can be daunting, dangerous, exhausting, and frustrating. Discipline, mental fortitude, and physical toughness are often at a premium and should never be discounted.

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Split-Based Level II Medical Support Operations

BY CAPTAIN ERICA L. KANE

A medical company deployed to Afghanistan used split-based operations to successfully provide medical care for Soldiers spread across Regional Command North.

Over the past decade of protracted conflict, the Army has continued to employ its forces in a manner that does not always follow doctrine but instead adapts to the mission set and operating environment. The flexible and responsive application of each facet of the Army Health System is critical to sustaining those combat forces. With linear battlefields banished to distant memory and the geographic dispersion of units across regions increasing, the use of split-based medical operations within the brigade combat team has become a fixture of combat medicine and the medical concept of support.

Establishing Medical Services

C Company, 24th Brigade Support Battalion, 170th Infantry Brigade Combat Team, stationed in Baumholder, Germany, continued to subscribe to this model of support when it deployed to Regional Command North (RC North) in Afghanistan in the spring of 2011. Upon arrival, C Company established the brigade level II aid station, which was colocated with the brigade headquarters, and the battalion level I aid station and brigade medical supply office, which were colocated with the battalion. It also colocated a mild traumatic brain injury (mTBI) and transition clinic with the RC North headquarters and German role III medical facility and provided medical support for a stability transition team.

Without a medical headquarters or an area support medical company in RC North, the brigade medical assets provided primary care for all of the Soldiers in the brigade and the other units operating in its area. The vastness of the region presented a significant challenge to providing organic care. To mitigate this problem, forward treatment teams and additional healthcare specialists (combat medics) were assigned from C Company to each of the maneuver battalions. This provided increased medical coverage to every patrol and outlying combat outpost within the brigade.



Members of the treatment platoon treat a local Afghan boy who was involved in a motor vehicle accident.



Soldiers prepare a patient for ground evacuation by mine-resistant ambush-protected ambulance to the role III hospital.

mTBI Clinic

C Company manned the mTBI and transition clinic at Camp Marmal with the brigade nurse and one combat medic. With access to the neurological treatment section of the German role III facility, the mTBI clinic insulated the mTBI casualties from the stressors at their forward operating bases (FOBs) as much as possible. This provided uninterrupted recuperative time in a controlled environment to ensure that patients could return to their units once medically cleared.

As the only facility of its kind in RC North, the mTBI clinic also offered care to all in need from outside the brigade. In addition to providing post-blast restorative care, this facility served as the brigade patient hold, specialty outpatient tracking node, and as the liaison to the German role III medical facility for specialty services consults and to the U.S. forward surgical team for post-operative care and medical evacuation.

Brigade Nurse

The brigade nurse served as an extension of the command, facilitating accountability of individual Soldiers and documenting their treatment. Her team was responsible for ensuring that the specifics of the care Soldiers received at the North Atlantic Treaty Organization facility were uploaded into the Armed Forces Health Longitudinal Technology Application and for providing that information to the referring aid station. This provided immediate feedback to the referring providers, complied with the mandate for electronic medical records, and eliminated the inevitable loss of paper documentation as Soldiers returned to their FOBs via multiple flights and ground movements.

Maintaining digital patient records reduced the need to repeat medical procedures and care because of lost documentation and ensured that Soldiers received the specialty care they needed regardless of the nation providing it. The brigade nurse's role as a nurse case manager and medical liaison enhanced medical readiness and recovery through the coordination of comprehensive treatment plans and detailed patient tracking.

Medical Battlefield Circulation

The 170th Infantry Brigade Combat Team deployed and established operations at more than 12 camps, FOBs, and combat outposts that were scattered throughout RC North. Although the reassignment of the forward treatment teams and additional combat medics and the use of coalition facilities bridged the primary care gap, the availability of ancillary services from coalition partners was limited.

To reduce the need for Soldiers to travel for chronic injury or routine specialty care, C Company developed a comprehensive medical battlefield circulation support plan to rotate each of its specialty providers and services to each remote company or larger unit on a routine basis. Services provided included physical therapy, preventive medicine, behavioral health, pharmacy, medical supply and maintenance, and dental. Pushing providers far forward not only reduced the strain on an already overtaxed transportation system but also reduced the strain on units by eliminating the requirement to lose a Soldier for over a week for him to receive 1 hour of active care.

Similar to the responsive patient care benefits, our specialty services proactively reduced and prevented the occurance of reportable events with an aggressive preventive medicine training and surveillance



A combat medic restocks the aid station shelves after sick call.

campaign, medication dispensing and management education, class VIII (medical materiel) management training, and routine medical maintenance within each facility. By providing specialty services and care as far forward as possible, the medical service providers maximized the combat readiness of the brigade's most valuable weapon, the Soldier. To keep Soldiers in the fight, these providers logged hundreds of patient encounters, serviced more than 500 pieces of equipment, and conducted more than 200 inspections.

Effects of Split-Based Medical Operations

Operating across such a large area presented many challenges, including a reduced ground evacuation capacity because the combat medics assigned to maneuver battalions came from the brigade evacuation platoon of C Company. However, it also presented many opportunities for joint and international cooperation.

Training prospects were limitless, ranging from base-wide mass casualty incident response exercises that included all medical personnel from sister services and coalition partners to medic exchange programs within the aid stations to education and training blocks of instruction with Afghan partners to opportunities for shifts within the German role III medical facility. Each of these events furthered C Company Soldiers' medical knowledge through the exchange of clinical practices and fostered the greater goal of cooperation. The Soldiers took advantage of the chance to develop relationships across national borders in order to provide the best care possible.

The practice of split-based medical operations is not new. It has proved to be successful across multiple rotations in Operations Enduring Freedom, Iraqi Freedom, and New Dawn. The Soldiers of C Company continued to use this framework and make it their own to provide superior, comprehensive, and responsive level II medical support across RC North to the Soldiers of the 170th Infantry Brigade Combat Team and others who needed care.

Through the deliberate application of assets and resources, the dangers of distance were diminished and the intent to keep Soldiers in the fight through the provision of support as far forward as possible was met. Daily, C Company Soldiers' efforts directly contributed to the sustainment of the medical readiness and health of the 170th Infantry Brigade Combat Team, serving a critical role in mission accomplishment.

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Property Accountability Challenges in a Headquarters Company

by Captain Blake K. Huff

The Headquarters and Headquarters Company (HHC), 24th Brigade Support Battalion (BSB), 170th Infantry Brigade Combat Team, deployed to Regional Command North in Afghanistan in February 2010. Shortly after deploying, the company underwent a change of command while simultaneously assuming a new mission set. This article is focused on establishing and maintaining property accountability and should assist anyone preparing to manage property within a decentralized and widely dispersed environment akin to Afghanistan.

The Right Sub-Hand Receipt Holders

In his book *Good to Great*, business guru Jim Collins states that the right place to start building an organization is not "where" but rather "who." Although we do not always have the option of choosing our personnel, the importance of selecting the right Soldiers to serve as sub-hand receipt holders cannot be overstated. The obvious requirements for sub-hand receipt holders are the ability to correctly identify end items and associated components using the appropriate technical manuals, an understanding of the hand receipt process and Department of the Army (DA) Form 2062 (Hand Receipt/Annex Number), and the means to properly secure equipment.

Additional requirements that are less obvious include time management skills (being available to assist with inventories) and the maturity to prioritize property accountability within mission requirements. Commanders must choose their sub-hand receipt holders carefully. Commanders must also be prepared for sub-hand receipt holders to conduct joint inventories for the outgoing and incoming sub-hand receipt holders as individuals arrive at the unit, redeploy, or change for any reason.

The Right Procedures

Our company conducted change-of-command inventories shortly after deploying. Because of travel times, distances, and the requirement to inventory both organizational property and theater-provided equipment (TPE), the change-of-command inventories took approximately 2 months. Keeping detailed notes on inventoried property and ensuring equipment was hand-receipted to end users were of the utmost importance.

TPE can be a problem area. TPE often includes equipment that Soldiers are unfamiliar with or for which the Army has not published a technical manual. It is important to remember that there is always someone within the formation with the expertise to identify equipment and components and assist with inventories. Field service representatives and logistics assistance representatives often can provide manuals and component listings from the manufacturers, which can be used to generate Property Book Unit Supply Enhanced user-created component listings in order to properly inventory and account for Army property. Seeking the right expertise can greatly reduce the number of property accountability problems.

Units in Afghanistan often operate while dispersed across multiple installations, which sometimes are several days of travel from the headquarters element. This presents obvious challenges for cyclic and sensitive item inventories. One technique we developed was to require inventory officers to travel to inventory all local items personally. For these purposes, we defined "local" to mean up to 1 day of travel.

For items located farther away, we required the inventory officer to confirm the validity of the DA Form 2062 and to contact the senior liaison on the installation in order to confirm the serial number. This is a less than ideal situation, but the dispersed nature of the mission and significant travel distances prevented an inventory officer from traveling to each item every month.

Of lesser concern from a property accountability perspective—but of significant concern for Soldiers and officers—is Army direct ordering. We allowed platoon sergeants to create orders for their Soldiers based on Soldier needs and mission requirements. We also identified one Soldier at each outlying location to order for his location. Allowing decentralized ordering permitted those Soldiers to fill requirements for their unique missions. However, when ordering in such a decentralized manner, it is important to communicate clearly to each location what the Soldiers are allowed to order and maintain contact if the order exceeds the maximum allowable amount for that location.

Following these simple procedures for correctly accounting for and maintaining accountability of equipment while deployed will significantly reduce the time spent on financial liability investigations to establish accountability for lost items. Property accountability can be a significant force multiplier. When it is done correctly, Soldiers will have the required equipment for their missions, which is the ultimate goal of property accountability.

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Medical Logistics in Regional Command North

BY CAPTAIN MARILYN M. FRISE

During its deployment to Afghanistan, the 170th Infantry Brigade Combat Team's brigade medical supply office implemented a number of changes to medical supply operations to improve the medical services offered to troops in Regional Command North.

In early spring 2011, the Brigade Medical Supply Office (BMSO), C Company, 24th Brigade Support Battalion (BSB), 170th Infantry Brigade Combat Team (IBCT), from Baumholder, Germany, arrived at Camp Deh Dadi II in Balkh Province, Afghanistan, as a part of the International Security Assistance Force supporting Operation Enduring Freedom. The seven-person BMSO team hit the ground running, putting into practice much that it had learned in predeployment training.

Because of its close proximity to the Army Medical Materiel Center, Europe (USAMMCE), the BMSO was able to participate in several medical logistics training opportunities. This training prepared the BMSO staff for setting up a functional office and warehouse in Afghanistan.

It was important to ensure that all of the main areas of operations were running smoothly and could fully sustain the units that they supported. The areas important to BMSO medical logistics operations included setting up the Defense Medical Logistics Standard Support (DMLSS) Customer Assistance Module (DCAM), distributing supplies throughout Regional Command North (RC North), managing an authorized stockage list (ASL), completing customer assistance visits, and providing medical maintenance support across the brigade.

Establishing DCAM Use

One of the biggest functions of medical logistics is requisitioning supplies. This requires communication. Before the 170th IBCT BMSO took over medical logistics operations across RC North, Department of the Army Form 3161, Request for Issue or Turn-in, was the primary means of requesting supplies.

Once the BMSO took over operations, streamlining the ordering process required the use of DCAM. However, only six units in RC North used DCAM level 1. The BMSO had to work hand-in-hand with the medical support operations section and a civilian Medical Communications for Combat Casualty Care (MC4) team to get DCAM up and running on the MC4 computers.

The MC4 team was quickly sent out to customers across five forward operating bases (FOBs) in RC North to begin setting up DCAM level 1. The process was slow but in the end made a huge difference in supply operations. With DCAM level 1, a unit could send orders to the BMSO, which in turn could screen orders and pull from its ASL or send requests to the supporting medical logistics (MEDLOG) company in Bagram.

For the most part, connectivity was fine; however, when DCAM connection problems occurred, the MC4 team was sent out to assist outlying units and the BMSO.

Class VIII Distribution

Class VIII (medical materiel) distribution was done solely by logistics convoys before the 170th IBCT BMSO took over operations. Logistics convoys generally ran every 1 to 2 weeks. This became too much of a wait for the BMSO and the units it supported.

With the goal of decreasing customer wait time, the BMSO decided that air assets would be the most expeditious means of transportation. Fortunately, RC North had two options for air—a civilian company, Molson Air, and the combat aviation brigade's shuttle—to distribute class VIII across the five FOBs that the BMSO supported.

Initially, the BMSO had some issues trying to request air assets because it did not handle air movement requests. These issues went away once the BMSO was able to fully control class VIII distribution by taking over air movement request submissions. Being able to transport by both air and ground made the process of supporting units much more efficient.

ASL Review

The initial ASL used by the BMSO had 251 lines. Having an ASL with items that the customer actually wants and orders is essential to meeting the main goal of decreased customer wait time. If an item was stocked at the BMSO, the customer did not have to wait for 2 weeks for the BMSO to receive it from Bagram and then another week to receive it from the BMSO. This meant supplies could be pushed out to units that much faster, which in turn increased customer satisfaction.

In early April, it became apparent that the BMSO would need to do a major reorganization of its ASL to better meet its goals. In coordination with the medical support operations section, the BMSO decided to conduct an ASL review. Reviewers scrubbed the requisitions and the ASL to see what was moving, what was not, and what needed to be deleted. They also scrubbed the transaction register to see what should be added to the ASL.

Working with the brigade surgeon cell and the providers and medical officers throughout the brigade, the BMSO determined what needed to be deleted and what needed to be added to the ASL. After completing the review, all additions and deletions were approved by the 24th BSB commander and 203 lines were added to the ASL, increasing it to 454 lines of supplies.

Another aspect of refining the ASL was increasing the operating levels for high-demand items. In doing so, more supplies could be pushed out without going through the MEDLOG company. The BMSO completed two ASL reviews during its time in Camp Deh Dadi II.

Customer Assistance Visits

Customer assistance visits were a huge part of the BMSO's operations. In early April, the biomedical equipment specialist and pharmacy technician began going out and servicing medical equipment and checking pharmacy practices, respectively. All medical equipment in the brigade had been serviced right after the mission rehearsal exercise in Hohenfels, Germany, before deployment. So, by April the equipment was ready for services again.

Customer assistance visits were coordinated by the



The brigade medical support office of C Company, 24th Brigade Support Battalion, 170th Infantry Brigade Combat Team, was located at Camp Deh Dadi II, Regional Command North, Afghanistan.



A biomedical equipment specialist conducts services on not-mission-capable equipment.

support operations medical operations section and executed by the biomedical equipment specialist, pharmacy technician, and medical logistics specialist. For the initial customer assistance visit, the BMSO's biomedical equipment specialist received assistance from a more senior biomedical equipment specialist from the MEDLOG company. This was a good mentoring opportunity and set the tone for future visits.

The pharmacy technician and biomedical specialist visited the five FOBs and four combat outposts in RC North. The pharmacy technician checked the pharmacy at each location to ensure that narcotics were being accounted for and documented properly and all pharmaceutical procedures were being followed.

In late May, the BMSO's senior medical logistics specialist provided training and guidance to ensure that medical logistics operations were fully capable at two FOBs that were having DCAM and warehouse management issues. During the following quarter, the medical logistics specialist and pharmacy technician conducted customer assistance visits to ensure that DCAM was running properly and all ordering questions were addressed and to make sure that the pharmacy practices put in place during the previous quarter were being continued. They also checked on each aid station's storage procedures and made suggestions on ways to improve their stocking methods. Customer assistance visits were used to ensure that medical logistics throughout the brigade was at its very best.

Medical Equipment Maintenance

Medical equipment maintenance is a crucial part of medical readiness. Having fully mission capable equipment can be the difference between life and death. Therefore, the importance of keeping up with medical equipment services within the 170th IBCT was paramount. This was made difficult at times by the geographic dispersion of the supported units.

Typically, the biomedical equipment specialist in a BMSO is slotted as a skill level 2 technician. However, the 170th IBCT BMSO biomedical equipment specialist was a skill level 1 technician right out of advanced individual training. Being skill level 1 and the only biomedical equipment specialist in the brigade gave him a steep learning curve.

Getting the biomedical equipment specialist well-versed on the scope of his job in the BMSO became essential. Fortunately, some training opportunities at USAMMCE with more senior biomedical equipment specialists were available. He began performing services as soon as he arrived in theater. With the assistance of contact repair teams (CRTs) from the MEDLOG company and on his own, he completed all services throughout the brigade in the allotted time.

Keeping up with test, measurement, and diagnostic equipment (TMDE) services and repairs was also important. After completing all medical maintenance services, the TMDE that the biomedical equipment specialist used for services had to be sent to USAMMCE in Germany for its own services and repairs. Staying up to date on these services and managing them ensured no loss in assistance to the units that the BMSO supported.

Fortunately, CRTs could be sent out from the MEDLOG company if any maintenance issues arose while the TMDE was being serviced. Since the BMSO's biomedical equipment specialist was the only one in RC North, it was imperative that he received support from the CRTs.

Many of the initial challenges faced by the 170th IBCT BMSO team when it arrived in Afghanistan were soon resolved. The BMSO updated many processes to create a more streamlined operation. This allowed it to reduce customer wait times and increase customer satisfaction. Many of the initial issues faced were resolved through hard work and diligence. Some issues, like weather and connectivity, continued to pose slight problems.

As the BMSO team began redeployment operations, it shared its knowledge with the incoming BMSO replacements to ensure a smooth transition.

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Supply Support Activity Operations in Regional Command North

by Captain Sean M. Chermer

Working with Afghan locals and using liaison officers allowed a brigade support battalion's distribution company to support all of its customers while maintaining property accountability.

A Company, 24th Brigade Support Battalion (BSB), 170th Infantry Brigade Combat Team, assumed operational control of the Regional Command North (RC North) multiclass supply support activity (SSA) at Camp Deh Dadi II, Afghanistan, in early March 2011. The SSA's primary mission was to receive, process, and issue classes II (clothing and individual equipment), IV (construction and barrier materials), VII (major end items), and IX (repair parts) in support of Operation Enduring Freedom.

As RC North's ground support warehouse, the SSA maintained an authorized stockage list (ASL) comprising 5,157 lines with 163 customer units. Using Afghan trucks helped to enhance efficient throughput, which enabled the SSA to maintain the highest level of customer support. Local nationals subsidized the workforce by providing manual and operator labor; this freed Soldiers to perform counterinsurgency duties inside the wire and injected money into the local economy. The use of liaison officers (LNOs) located at the SSA made it possible to streamline the receipt and issue of equipment and supplies to outlying battalions.



A Soldier of A Company, 24th Brigade Support Battalion, loads class IX (repair parts) onto a load-handling-system trailer for movement to a forward operating base in Afghanistan.

Support operations were conducted bilaterally by retrograding excess or unserviceable items through coordinated operations and the routine turn-in of items for onward movement. The mission always came first, allowing commanders to plan and execute their wartime missions with logistics support serving as a combat multiplier, not as a hindrance.

Partnering With the Locals

Supply distribution throughout RC North increasingly relied on Afghan trucks to sustain a continuous logistics pipeline to the warfighter. The relative stability of northern Afghanistan permitted the SSA to routinely use Afghan trucks to move equipment and supplies across the RC. Most delivery of class II, III, IV, and IX items was made by unescorted Afghan trucks moving 20- or 40-foot containers that were fixed with one-time seals.

The relative stability of RC North allowed emerging standard operating procedures to be executed with a 100-percent success rate. Afghan trucks were given 7 days to travel from their point of origin to their destination. In many cases, the suspenses were met, but the timeliness of a delivery was not guaranteed without an escort. Class VII, mail, sensitive items, priority supplies, and parts traveled with the A Company convoy security platoons on Afghan and military trucks.

SSA capabilities were further enhanced through the

employment of 11 local Afghan men ranging in age from 20 to 35. Their jobs allowed them to provide for their families while gaining skills that might help them in the future. These motivated locals were eager and willing to work, accomplishing their daily tasks so that Soldiers could focus on military occupational specialty-specific jobs within the SSA. Much of their workload was physical labor; however, under the tutelage and watchful eye of SSA personnel, they assisted the storage section's efforts to replenish and reorganize the ASL.

Using Liaison Officers

The 2d Battalion, 18th Infantry Regiment, in Kunduz Province to the east, and the 1st Battalion, 84th Field Artillery Regiment, in Faryab Province to the west, supplemented the SSA, located at Camp Deh Dadi II in Balkh Province, with embedded LNOs under the direction of the 24th BSB support operations officer. The duties and responsibilities of an LNO encompassed the receipt, inventory, preparation, and onward movement of equipment, repair parts, and supplies. As subsidiaries to the 24th BSB's S−4 and battalion maintenance officer, the LNOs were responsible for signing for, inventorying, and accounting for every item from receipt to delivery.

The task organization of the LNOs with the A Company SSA effectively mitigated challenges with property accountability and provided company commanders with a clear line of custody. The flow of information, using itemized reports, through the LNOs to commanders on the disposition of repair parts and supplies was essential to the warfighter's planning and execution of missions. The LNOs also partnered with A Company's convoy security platoons as they jointly loaded Afghan and unit trucks for onward movement as part of tactical convoy operations to their units' respective combat outposts (COPs), forward operating bases (FOBs), and camps.

Processing Retrograde Items

Within 1 month of the transfer of authority to the 24th BSB, Operation Clean Sweep was launched. The force assigned to the operation constituted only 60 percent of the SSA's manning requirements, and 85 percent of those personnel were in their initial term in Afghanistan.

Nonetheless, the Soldiers successfully processed more than 4,000 retrograde items in support of the operation. This equated to the removal from COPs, FOBs, and camps and the onward movement of 492 463L palletized loads, 80 20-foot containers, and 56 truckloads of retrograde items that had accumulated from a decade of war. The execution of Operation Clean Sweep injected over $11 million of recoverable, nonexpendable, and exchange pricing items into the logistics pipeline. Operation Clean Sweep forged the way for a theaterwide retrograde operation in the fall of 2011.

The common practice associated with retrograde is to ship it from the aerial port of debarkation, Camp Marmal, through Bagram, Afghanistan, to its destination in Kuwait. However, the 24th BSB made a deliberate shift from air to ground movement to increase throughput and efficiency. Ground movements, despite the distance traveled from Afghanistan to Kuwait, were faster and cheaper and reduced LNO requirements at the ports.

For items leaving by air, 463L pallets packed for retrograde had to meet strict Air Force standards before shipment. Although loads departed the SSA in accordance with the Air Force standards, transportation, handling, and marshalling of the pallets created deficiencies. The induction of shipments into the frustrated cargo yard created a minimum delay of 1 to 2 months for onward movement of items and increased Soldier requirements. The mission of these Soldiers was to accompany the loads, correct deficiencies from transit, and ensure acceptance of the items for onward movement.

Meeting the Demand for Construction Materials

RC North's limited infrastructure strained to support the development of COPs, FOBs, and camps established by the troop surge. The result was an immediate increase in demand for class IV items. Prior units did not account for class IV on the SSA's ASL. A class IV yard began to take form as inventories were conducted on more than 100 40-foot containers that contained lumber, HESCO barriers, concertina wire, and barbed wire. Nearly 60,000 pieces of lumber in the containers had not been accounted for previously.

These supplies were crucial to the development of FOBs and COPs throughout RC North. The rapid movement of class IV materials to Camp Deh Dadi II caused the camp's detention costs for carrier containers to rise above those of all other camps in Afghanistan, to nearly $150,000 a month. In September 2011, the SSA began the daunting task of redistributing class IV items from carrier containers to Government-owned containers in order to reduce the monthly detention fees. On 12 November 2011, the SSA sent the last carrier container out of the camp's gate, successfully contributing to the brigade's effort to establish and maintain fiscal responsibility.

Logistics support from the A Company, 24th BSB, SSA served as a combat multiplier and not as a variable that battlefield commanders had to take into account before executing missions. Hurdling all obstacles that emerged with common practices and outside-the-box thinking forged a logistics pipeline of support to Soldiers throughout RC North. Success was met through a partnered effort with Afghan support and a common vested interest in accomplishing the mission.

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Making BCS3 Work in a Deployed Environment

by Lieutenant Colonel David A. Poland

Units planning to use BCS3 in a deployed environment may find it to be a far greater challenge than expected. Soldiers of the 310th Expeditionary Sustainment Command learned this in 2011 as they supported Operation New Dawn.

The Battle Command Sustainment Support System (BCS3) is the logistics application of the modular Army Battle Command System. It can pull information from a variety of logistics information systems and compile it into one common operational picture for commanders to view. BCS3, however, suffered a number of setbacks in its early fieldings because it was perceived as being difficult to use and often unreliable.

After a major effort to improve BCS3, U.S. Forces–Iraq (USF–I) and the Army's expeditionary sustainment command (ESC) in Iraq were told in 2010 to field the system or it would be removed from the theater. Both USF–I and the ESC, in their efforts to field the system, issued orders directing units to report through BCS3. This was the first mandate for units to use the system.

However, after a widespread fielding from September to December 2010, BCS3 was largely abandoned in favor of simple spreadsheets and databases. Soldiers went back to using Microsoft Excel and Access to manage fuel, and they stopped doing the maintenance needed to keep BCS3 functional. By March 2011, the 310th ESC arrived in Iraq to find that BCS3 was being used only for partial reporting of ammunition, water, and operational rations.

Some of the problems with BCS3 surfaced when the Army transitioned from a direct-support model to an area-support model that uses hubs, spokes, and forward operating bases. BCS3 also requires a great deal of maintenance and coordination at all levels of the organization to keep the system operating and the information accurate. However, with hard work and Soldiers dedicated specifically to BCS3 maintenance, it can be a great resource for managing most commodities in a deployed environment.

Although an updated version of BCS3 was specifically created to address supply point operations, the system does not adequately accommodate locations that do not have unit identification codes. Nor does it provide the data needed to manage ammunition at an ammunition supply point or fuel contained in bags.

Problems Associated With Unit Task Organization

The first thing that requires a great deal of effort to make BCS3 work is maintaining the unit task organization (UTO). BCS3 rolls up data for a given commodity from each echelon of an organization for the next-higher-level organization, appending the data into one common operational picture for the commander to see.

A unit must include all subordinate units in its organization, or it will not automatically receive data for those units. If a unit rotates out of theater and the UTO is not updated, then all units above the departed unit will continue to see this unit's unchanging data but will not see the replacement unit's data.

When the 310th ESC arrived in Iraq in March 2011, the UTO at the ESC level had not been updated for 6 months (while BCS3 was being fielded). Given the 10-month rotations of Reserve component units and the 12-month rotations of active duty units, the UTO may have been as much as 50 percent inaccurate. That is, 50 percent of the logistics data reported came from units no longer in Iraq and the replacement units were not reflected at all. These problems came from units that mandated, fielded, and were true believers in the system.

In another example, the ammunition section of the ESC noticed discrepancies in a class V (ammunition) count with a maneuver division. After studying the problem and discussing the issue with that division, the warrant officers discovered that the issue was an inaccurate UTO.

The overall accuracy of BCS3 for class V is estimated at 60 percent. Only the ammunition on individual unit property books is tracked with BCS3. Stockage at ammunition supply points is maintained directly from the

Standard Army Ammunition System–Modernization (SAAS–MOD). SAAS–MOD provides ammunition managers with much more detailed ammunition information than BCS3 does. This minimizes the impact of BCS3 errors because of faulty reporting and out-of-date UTOs.

In his article "A New Dawn for BCS3" in the September–October 2011 issue of *Army Sustainment*, Major John J. Coiro said that one of his lessons learned while using BCS3 with the 103d ESC was to maintain a UTO manager. Being a UTO manager is an additional duty assignment in every unit with BCS3. Most units assign the knowledge manager or logistics automation officer as the UTO manager. However, this is a duty that requires diligent, constant updates.

All operators, or someone looking out for them, must install the current UTO onto every BCS3 laptop in the organization to maintain the accuracy and reliability of all data rolled up through that system. Typically, this is a point of failure for most organizations because one bad link in the chain affects the entire system.

BCS3 PROVIDES THE CONSUMPTION RATE ONLY FROM THE PREVIOUS DAY.

The Logistics Factor File

The next thing requiring a great deal of effort and coordination is the Logistics Factor File (LFF). When calculating days of supply for a given commodity, LFF provides the multiplication rate for the calculation and sets thresholds of "green," "yellow," "red," and "black" based on predetermined criteria. If the Army provides Soldiers with three meals a day, the LFF of "3" is entered for each day. However, every unit in your supply chain must install the same LFF on every BCS3 laptop dealing with the same commodity in order to reconcile data.

When the 77th Sustainment Brigade deployed to Iraq in the spring of 2011, it noticed inconsistencies with the bottled-water count for a subordinate battalion. The battalion was "red" for water but claimed it was "green." The brigade requested an Excel spreadsheet from the battalion to assist with troubleshooting the issue. The battalion refused, saying that BCS3 is the system of record, and if the brigade wanted the numbers, it could get them from BCS3.

After a significant amount of time was spent investigating the issue, the 77th Sustainment Brigade's logistics automation section asked the battalion what LFF it was using. The unit replied, "What is an LFF?" The battalion, which was totally committed to BCS3, was calculating three bottles of water per day for a 5-day week. The mandated LFF from USF–I was four bottles of water per day for all 7 days in the week. Doing the math, this error in LFF was a difference of 13 bottles of water per Soldier each week.

What makes this issue more complicated is the manner in which each unit chooses to provide reports. A unit that uses the Logistics Reporting Tool to roll up the status of its commodities can have 1-liter bottles of water with the same national stock number rolled up into 12-bottle cases and displayed as total bottles or total cases. However, units using the combat reporting tool application in BCS3 cannot do this; the Soldiers must know which unit is reporting cases and which unit is reporting bottles and then convert the totals to the unit (bottles or cases) needed.

(The Logistics Reporting Tool is an application that interfaces with BCS3 on a regular laptop. It was designed to make the complicated and unfamiliar interface of BCS3 resemble spreadsheets and make BCS3 more intuitive. The Logistics Reporting Tool, however, seems not to resolve the many issues with the overall system.)

The LFF can also cause errors when creating a tracked items list (TIL). A TIL allows a unit to select and track specific items from the broad inventory of supplies and commodities. However, when a new TIL is created, the LFF for each item is set by default. When this happens, the operator must adjust the LFF for each item, or all days of supply for that item will be reported incorrectly. This was the situation with the battalion that created the water issue for the 77th Sustainment Brigade.

Commodity History

BCS3 does not provide any history of commodity use, which is necessary if a logistician is to forecast how much food, ammunition, or fuel a unit will need for upcoming operations.

A number of questions could come up that require information that BCS3 does not provide: What is the 14-day rolling average for JP8 fuel use at a given base? What is the 25-day rolling average for class I (subsistence) and water use for a given base or dining facility? What effect did the Islamic holy month of Ramadan have on the consumption of both food and water last year? What about last summer, winter, or any other annual or historic event?

BCS3 provides the consumption rate only from the previous day. If a fuel point has a busy day, the class III (petroleum, oils, and lubricants) commodity manager will order too much fuel for the next day if that person bases the order solely on BCS3 usage data. Conversely, a slump in daily business can cause shortages. The previous year's data are simply not available from the system. BCS3 creates a daily distribution rate (DDR) for these calculations. A commodity manager must set the DDR manually. Daily reports in BCS3 are exported into a spreadsheet or database where the DDR is calculated and then manually input back into BCS3.

Unfortunately, that is not the end of trouble for class III managers using BCS3. All modern operations are joint operations involving all branches of the military, not just the Army. Fuel is not owned by the Army; it is owned jointly. Class III managers must report fuel in the Fuels Enterprise System (FES) to the Defense Logistics Agency Energy. BCS3 is not compatible with FES, so operators must export data into a spreadsheet and then import the spreadsheet into FES.

No logistics information system for fuel will feed BCS3. Operators at distribution points must input data directly into BCS3 or Microsoft Excel. If Excel is used, the spreadsheets are then imported to BCS3. With no logistics information system for class III, BCS3 cannot calculate pending fuel orders and their effect on sustainment. Simply put, BCS3 does not meet the minimum requirements needed to report class III.

BCS3 CAN PROVIDE A COMMANDER WITH A HEADCOUNT OF SUPPORTED PERSONNEL.

Microsoft Excel and Access

Since operators are importing data from Excel and Access and exporting data back to Excel and Access to do so much of their work, they must be aware of some of the pitfalls. If the data are not exactly in the correct format, such as when operators have added columns to account for factors missing in BCS3, then BCS3 will not take back any of the data. Operators must save a copy of the data they wish to import, remove all extra columns, and then import the data.

Operators at the ESC who manage class I must import data from contractors produced in the logistics status report known as LOGSTAR (created using Excel) and other Excel spreadsheets and Access databases every day. Class III managers at the ESC finally overcame these issues by simply abandoning BCS3 within 1 month of the much-heralded fielding of BCS3 in 2010.

Operator Maintenance

The final thing to remember when using BCS3 is to perform operator maintenance. Plugging data into BCS3 is like overfeeding guppy fish. BCS3 will continue to accumulate files automatically fed into the system until it induces system failure and crashes. At least twice a month, operators must clean out the kernel log file, close the project currently running in BCS3, and start a new one. Failure to conduct this maintenance is the most common source of problems within the BCS3 network.

Headcount

BCS3 can provide a commander with a headcount of supported personnel. This is especially important because logisticians calculate days of supply based on the number of supported personnel. However, when the 310th ESC arrived in Iraq in March 2011, the figures for headcount in BCS3 were off by more than 50,000 personnel. This was mostly because the UTO had not been updated in 6 months.

Commanders must direct specifically how personnel are to be tracked in BCS3; the recommended way is for each unit to report its own personnel data. Since this does not address the number of contractors in theater, the commander has to address how to account for contractors in his guidance.

Without such specific guidance, some units reported the headcounts from the base dining facilities into BCS3. This created a myriad of issues, and the total error in count was tremendous. USF–I resolved the issue by purchasing another personnel system called TREND. BCS3 operators now manually input figures from that system into BCS3.

BCS3 is a very powerful tool, but it requires a lot of intense effort. Commanders around the world are mandating the use of BCS3 based on its implementation success in Iraq. However, the exclusive use of BCS3 in Iraq lasted only 30 days before units began to return to simple Excel spreadsheets and Access databases.

Within 6 months of fielding BCS3, it was relegated to tracking only class I, water, and ammunition on unit property books. While the current version of BCS3 will likely never work for managing class III, it can be made to work for other classes of supply with a great deal of intense effort by all involved. However, a failure anywhere in the supply chain will adversely affect the accuracy of data BCS3 produces at all levels.

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The Enlisted Aide Program and Training

A course at the Joint Culinary Center of Excellence instructs current and future enlisted aides on their duties and arms them with the knowledge needed to address situations that are not clear cut.

According to Department of Defense (DOD) Instruction 1315.09, Utilization of Enlisted Personnel on Personal Staffs of General and Flag Officers, enlisted aides are authorized for the purpose of relieving general and flag officers of those minor tasks and details that would otherwise be performed at the expense of the officer's primary military official duties. Enlisted aides assist with the care, cleanliness, and order of assigned quarters, uniforms, and military personal equipment. They also act as the point of contact in officers' quarters, receive and maintain records of telephone calls, make appointments and receive guests, and assist in the planning, preparation, and conduct of official functions and activities.

Enlisted Aide Selection and Management

Enlisted aides often hold military occupational specialty (MOS) 92G (food service specialist), but it is not a requirement. In the Army and Air Force, general and flag officers who are authorized enlisted aides can choose Soldiers and Airmen from any MOS. (The Marine Corps, the Navy, and the Coast Guard require enlisted aides to be culinary specialists.)

Officers in all services make their selections through an interview process that includes a records review and recommendations. The requirements to become an enlisted aide include:

- ❑ Being in the rank of E–5 or above. (E–4s are admitted into the program on a case-by-case basis.)
- ❑ Having 2 years of cooking experience.
- ❑ Submitting paperwork and documents to volunteer for the program, including the servicemember's last five evaluations.
- ❑ Having at least a secret security clearance.

An "Enlisted Aide Packet Check List," including instructions on how to submit the packet and who to submit it to, is available on the Internet at http://www.quartermaster.army.mil/jccoe/Special_Programs_Directorate/Enlisted_Aide_web_documents/EA_Packet_Instruction_Checklist.pdf.

In July, six Army enlisted aide authorizations were vacant. Since these vacancies change all the time, the Army Enlisted Aide Manager, whose contact information is available in the checklist document, can be contacted for the most up-to-date information.

A Short History of the Enlisted Aide

Individuals have served as enlisted aides since the Revolutionary War. General George Washington had an enlisted aide on his staff before he built his artillery and infantry. However, the individual performing the functions of the enlisted aide did not have this formal title. He was instead known as a "servant."

Enlisted aides continued to "serve" officers in all ranks until the program was halted in the second half of the 20th century. In 1959, Senator William Proxmire began raising concerns about racial prejudice, enlisted aides acting as personal servants, and the high cost of the Enlisted Aide Program. (There were more than 3,000 enlisted aides across DOD.)

"He [Senator Proxmire] was trying to bring up to Congress and the Department of Defense that enlisted aides were being underutilized and that they were being pretty much abused," said Senior Chief Petty Officer Frank Davila, an Enlisted Aide Training Course instructor. "He shed the light on the program and . . . the program actually was disestablished."

DOD Directive 1315.9, which has recently been replaced by DOD Instruction 1315.09, was rewritten with the help of then President Dwight D. Eisenhower. The word "servant" was replaced with the newly created term "enlisted aide." Language also was added to the directive to ensure against the abuse of enlisted aides.

In 1973, a General Accounting Office (now Government Accountability Office) report found that the program was cost prohibitive. (In the year before, the Quartermaster Center and School had trained 6 classes of 24 enlisted aides. A total of 1,915 enlisted aides were trained across the services.) As a result, the Secretary of Defense ended enlisted aide training.

In 1974, the program was reestablished, and Congress mandated that the authorized number of enlisted aides be reduced. Once reductions were completed in 1976, the program was left with 300 authorizations—85 percent fewer enlisted aides than before the program's disestablishment. Today, Title 10 of the U.S. Code continues to limit enlisted aide authorizations to 300 (65 joint, 81 Army, 21 Marine, 58 Navy, and 75 Air Force positions.)



An Enlisted Aide Training Course instructor shows a student the specifics of setting up a general officer's uniform during a practical exercise. *(Photo by Julianne E. Cochran,* Army Sustainment*)*

The Evolution of Enlisted Aide Training

After its reestablishment, the enlisted aide program employed on-the-job training (OJT) to qualify its force. Navy enlisted aides did OJT on board ships to support executive dining rooms. Enlisted aides in all services received OJT in the Pentagon's executive dining messes, the White House, Camp David, and the C20 Program [where enlisted aides acted as flight attendants on jets used by general and flag officers.]

To provide additional experience, the Navy regularly sent Sailors to Starkey International Institute in Colorado and other personal services schools because no formal military training was available.

While schools like Starkey helped to develop the personal services and culinary skills of enlisted aides, their civilian curriculum ignored important aspects of military household management. After attending such schools, enlisted aides still needed training on uniform maintenance, antiterrorism, operational security, community security, and the DOD rules and regulations applying to their field.

Finally, in 1992, workshops for enlisted aides began at Fort Lee, Virginia. Army enlisted aides were the first to attend, and the Navy began to send their enlisted aides shortly after. Though the workshops filled some training gaps, a formal training program still did not exist.

A Formal Program Fills the Gaps

In November 2003, the Chief of Staff of the Army determined that there was a need for a program to select, train, and manage enlisted aides. In March 2004, Sergeant Major Jamey Ryan was assigned as the Senior Enlisted Aide Advisor and designed a modern Enlisted Aide Training Course (EATC), which was then taught at the Army Center of Excellence, Subsistence and now at the Joint Culinary Center of Excellence (JCCoE) at Fort Lee. This formal program addressed military-specific areas of household management.

Initially, classes were only available to the Army. Navy enlisted aides began attending in 2008. The program continues to gradually improve based on input from the enlisted aide community, and it is receiving additional support from all of the military services. In fiscal year 2013, all services, including the Coast Guard, are expected to send enlisted aides to the course.

While the course is still not mandatory, having all branches involved improves the credibility of the program and increases the likelihood of it being chosen over civilian alternatives. This saves DOD money and ensures standardized training for enlisted aides.

The Curriculum

Students attending the EATC receive instruction on a wide variety of subjects. Most importantly, they are exposed to the DOD and service regulations pertaining to enlisted aides.

"When an admiral or a general gets promoted to one or two stars and they've never had that privilege of having an enlisted aide on their staff, they don't know what they [the enlisted aides] can and can't do," said Senior Chief Davila. "And, that's why we feel that it's very important that all those enlisted aides that are identified or are going to be enlisted aides that they come to this training first. . . [where] we can give them those necessary tools

that they need to go out there and be successful."

Addressing the gray areas. Senior Chief Davila said that the push for formal training was initiated because of the need to address the "gray areas" enlisted aides face.

"When you have an enlisted aide show up at the doorstep of a general [or] flag officer and they don't have the proper training or they're not qualified, then things happen," said Senior Chief Davila. Though regulations exist to guide enlisted aides as to what they can and cannot do within the scope of their duties, some areas still require careful handling because clear-cut answers are not available. In order to better equip enlisted aides to deal with these gray areas, instructors provide them with DOD and service instruction on what duties are permissible and impermissible. Through role play, students are taught the skills needed to address tough situations.

Senior Chief Davila said that it is very important for everyone, including the general or flag officer, his spouse, the enlisted aide, the aide de camp, the flag aide, and all other personal staff, to be familiar with the instruction so that gray areas do not exist.

Interpersonal role play. Because enlisted aides spend 90 to 95 percent of their work hours inside the officer's quarters, it is important for them to have a healthy working relationship with the spouse and any other family members who may spend a lot of time in the home. Students are taught to not be afraid to open up and ask for a dialog with the spouse or officer if they feel that something is not right. Social role play helps students work on interpersonal relationships and the challenges that may arise.

Continuity book. The most essential physical tool enlisted aides need is a continuity book. This book should include at a minimum the officer's biography, the officer's likes and dislikes, dietary restrictions, medications, and any health issues the officer has that may require intervention by the enlisted aide in an emergency. It also includes family members' likes and dislikes and the dates of special occasions, such as anniversaries and birthdays.

The book also should include the DOD and service instructions to refer to if there is a question about the enlisted aide's duties or responsibilities.

Uniform assembly diagrams and a photo of the officer in his uniform also are advisable to guide the enlisted aide in proper uniform setup.

The book also needs to include essential phone numbers, such as the base locator, base ambulance, base clinic, laundry facilities, commissary, medical center, fire department, the headquarters (aide de camp, flag aide, and secretary), legal, and base police.

Guides for hosting formal events and a schedule of what areas of the house to clean on what days can also be helpful for enlisted aides. Students are asked to develop time-management schedules for their other tasks.

Field trip. To give students an idea of the operation of single and multi-aide homes, classes take field trips, sometimes to the Washington, D.C., area and other times to Norfolk, Virginia, where current enlisted aides give them tours of general or flag officers' quarters and answer any questions they may have about their duties. This gives students the opportunity to observe the pace of operations in a home and to note any tasks that they may be required to perform that they may have overlooked.

Uniform assembly. Enlisted aides are responsible for setting up the uniforms of their commanding officer. As enlisted aides serve in many interservice assignments, sometimes on short notice, it is important for them to be familiar with the uniforms of all the services.

EATC instructors provide hands-on training and a practical exercise in uniform assembly to familiarize enlisted aides with officers' dress uniforms. In the exercise, each student is required to set up a uniform from each service.

Financial management. Enlisted aides learn record-keeping and accounting procedures to help them manage the two types of funds that they are accountable for: official representation funds (ORF) and personal household accounts (or petty cash funds). ORF are funds used for official events, and petty cash funds are used in the daily duties of maintaining the household. In the class, students are taught to use a Microsoft Excel spreadsheet to execute basic accounting and financial management of the funds.

The enlisted aide will meet with the general or flag officer monthly to discuss how much money will be needed to cover household expenses, such as having the officer's uniforms cleaned and buying groceries at the commissary. Enlisted aides must maintain receipts for all expenses. EATC students are taught that it is a requirement to meet with their boss at the end of each month to audit these records so that both parties know where the money went.

Meal preparation and planning. Culinary skills are also evaluated during the course. Students plan, prepare, and present a 4-course meal, usually in the JCCoE laboratory.

"It's not a graduation requirement, but we want to see their skill level—where are they in regards to their culinary skills—and then we help them along the way," said Senior Chief Davila.

The Enlisted Aide Training Course is open to all military personnel. Those in and pending assignment to enlisted aide positions have first priority for the class, as they are the ones who need the information provided in EATC most immediately. Individuals interested in or who have questions about EATC should send an email to usarmy.lee.tradoc.mbx.qm-enlisted-aide-training@mail.mil or call (804) 734–3112.

—Julianne E. Cochran

The Impact of Logistics on the British Defeat in the Revolutionary War

by Major Eric A. McCoy

At the onset of hostilities between Great Britain and its 13 North American colonies in 1775, the British enjoyed significant advantages over the future United States of America. While logistics arrangements for both sides during the Revolutionary War were somewhat spartan, the British logistics system, compared to the logistics organization of the rebelling colonies, was, on the surface, the epitome of efficiency. Faced with a 3,000-mile line of communication across the Atlantic Ocean, Great Britain ensured that its military forces were reasonably well equipped and never starved. Great powers would not repeat a strategic logistics feat of this magnitude for more than 150 years, until Operation Torch in World War II.

However, the British logistics architecture had significant shortcomings, and before British strategists and logisticians could identify and correct them, those deficiencies contributed significantly to the British Army's defeat. The failure of the British to develop an effective supply chain operation; integrate their logistics, strategic, and tactical plans; and adapt their supply procedures resulted in their inability to execute a counterinsurgency campaign against the American colonies successfully. That failure eventually resulted in American victory.

Operating a Supply Chain

The first British logistics failure was an inability to develop and protect an effective supply chain operation for their campaigns. According to Injazz J. Chen and Antony Paulraj, in their 2004 *Journal of Operations Management* article, "Towards a Theory of Supply Chain Management: The Constructs and Measurements," a supply chain is a system of organizations, people, technology, activities, information, and resources involved in moving a product or service from supplier to customer. The problems of supplying the army from Great Britain were great, and the most serious challenge was that of shipping food over such a tremendous distance.

Cork, on the coast of Ireland, was the primary port for shipping foodstuffs to the British in North America. This was not only because of its large natural harbor and its strategic location closer than English ports to the American colonies but also because the farms of Ireland were a major source of food. Southern Ireland also was an important recruiting center for the British Army, thus making it easy for British quartermasters to put troops aboard food ships bound for America. However, a combination of inadequate packaging, corruption, poor quality control, and substandard inland-to-port transportation limited the stocks that made it from supply sources to the ships.

In one instance, one of the worst storms in years struck a major logistics convoy after it had departed Cork. Many of the ships were forced to turn back to England, others were diverted to Antigua in the Caribbean, and still others spent weeks sailing up and down the eastern seaboard of North America waiting for the weather to break while their cargoes rotted.

American privateers authorized to intercept British cargo also took their toll. Only 13 of the convoy's ships eventually made it to Boston, and very little of their cargo survived. Only the preserved food (such as sauerkraut, vinegar, and porter) arrived intact. Most of the other provisions were rotten, damaged, or dead; only 148 of the livestock survived. Out of 856 horses shipped, only 532 survived the voyage. This convoy marked the last time that Britain attempted to ship fresh food and livestock to its army.

The demand for supplies was not too much for British shipping to accommodate. However, the supply chain broke down under the combined effects of weather, poor supply procedures, and profiteering. Long lead-times for resupply of goods, coupled with a less than reliable distribution system from England, hindered British operations on the North American continent, requiring their forces to forage for resources and base themselves out of key port cities in the colonies.

Moreover, logistics influenced the first significant British strategic judgment of the war, the decision to abandon Boston to the rebelling colonists. British military leaders realized that, even if British forces were successful in initiating a campaign from Boston, it would be very hard to maintain lines of communication with supply bases around the city. Not only were the rebels likely to attack the precarious supply lines, but they probably would sweep the surrounding area clean of any usable foodstuffs and other supplies.

General Thomas Gage, the British Army commander from 1768 to 1775, finally decided that the evacuation of Boston was unavoidable. In correspondence to Eng-

land in October 1775, he admitted, "It appears to me to be most necessary for the prosecution of the war to be in possession of some province where you can be secured, and from whence draw supplies of provisions and forage, and that New York seems to be the most proper to answer these purposes." With less than 6 weeks of provisions on hand and no knowledge of when his next shipment might arrive, his successor, General William Howe, had no choice but to leave Boston in March 1776.

> "There is nothing more common than to find considerations of supply affecting the strategic lines of a campaign and a war."
>
> —Carl von Clausewitz, *On War*

However, despite Gage's desire to move to New York for strategic reasons, the army was moved to Halifax, Nova Scotia, primarily because Howe and General Henry Clinton were unsure if they could subsist adequately in the New York area. Moreover, they were equally unsure about when they could expect the next supply convoy from Cork. The state of supplies at Halifax was not much better than at Boston, but at least the locals were friendly and supportive.

The move from Boston to Halifax was carried out hastily, with significant logistics consequences. The British left behind an estimated 30,000 pounds of supplies because of inadequate shipping, and rebel forces summarily captured those supplies. These losses, coupled with an ineffective supply chain, hindered British major offensive operations.

Integrating Logistics, Strategy, and Tactics

The second British mistake was their failure to integrate their logistics, strategic, and tactical plans. Major changes in the conduct of conventional warfare, which included changes that centralized logistics operations, were not adopted until the Napoleonic era of the early 19th century. The British officers' pre-Napoleonic concept of war was not suitable for conducting counterinsurgency operations in which the bulk of their logistics support had to come from overseas.

When overseas resupply became less reliable, British forces were required to forage off the land. However, foraging was never entirely successful for several reasons. First, foraging was no longer part of conventional strategy. Second, it was time-consuming and tiring, and many British soldiers considered it to be beneath them. Third, foraging parties required a covering force, which was a further drain on manpower and consumed even more supplies. Finally, many foraging expeditions produced little or nothing, which not only was demoralizing but also placed a further drain on supplies.

Conventional tacticians of the time did not trust living off the land, arguing that it was bad for morale and could lead to looting, unauthorized foraging, and desertion. Under the British concept of limited warfare, the military reimbursed civilians from whom supplies were taken. In practical application, military forces often found that it was easier to take what they needed by force. This pillaging alienated many Americans who were sympathetic to the British or neutral.

Worst of all, foraging exposed a great number of British soldiers to guerilla warfare, including ambushes and snipers. Foraging parties grew as large as 5,000 men, but small parties of rebels habitually harassed them. British losses in these types of skirmishes soon equaled those suffered in larger pitched battles.

So the British found that logistics strategies requiring foraging or acquisition of supplies from the host nation were counterproductive to counterinsurgency strategy. However, in hindsight, the British did not realize the operational and strategic impacts of these actions until it was too late to correct them.

Furthermore, nearly every time the British Army appeared ready to strike a decisive blow at the Americans, it seemed that a shortage of reserve supplies and a lack of confidence in resupply operations prevented action. British generals, in particular Howe and Clinton, were not willing to commit their forces to offensive campaigns without considerable supplies in reserve. The failure of the British Government to provide their forces with adequate provisions was not due solely to neglect but also to a logistics system that was inadequate and poorly managed, combined with a lack of national will to expand the war.

Under the precepts of Napoleonic warfare, Howe and Clinton could not afford to lose their army because no replacements were available in England. So they would only commit their forces if the odds of victory were overwhelmingly in their favor and if adequate logistics was in place to resupply combat power. This operational employment of their forces did not support a national strategy for defeating the Americans.

In order to win the conflict and retain their colonies, the British had to seek out the rebel forces and defeat them. However, British generals often directed their soldiers to sit and wait, or worse, to evacuate a position, garrison, or city that the British had already gained through difficult fighting. The effect that logistics deficiencies had on these decisions to wait or pull back is undeniable. The battles of Trenton, New Jersey, in 1776 and Saratoga, New York, in 1777 are examples of how the long delays caused by insufficient supplies and the resulting caution shown by British commanders allowed the American forces to concentrate their forces at critical locations and avoid potentially crushing defeats.

Adapting Supply Procedures

Finally, the British failed to adapt or change their supply procedures to respond to American tactics. Great Britain had a system to support its widely dispersed colonial armies, but it was plagued with many internal problems, primarily inefficiency and corruption. A quick succession of overseas conflicts quickly exposed faults in this support system. To their credit, the British were able to correct many of the deficiencies before the end of the Revolutionary War, but not in time to win.

Three bureaucracies supported the British forces: the Treasury Department, the Navy Board, and the Ordnance Board. When hostilities began in North America, the Treasury Department had overall responsibility for supplying the army. A division of labor did exist, but it was not rigidly maintained and featured some duplication of effort. In addition to overall coordination, the Treasury was responsible for food supplies, including forage for animals.

The Navy Board was responsible for moving infantry and cavalry soldiers, clothing, hospital supplies, and tents and other camping equipment. The Ordnance Board was responsible for artillery, guns, and other ordnance stores, including ammunition, and engineers. Failure to divide labor and ensure cross-communication led to duplication of effort in some areas and inefficient performance in others.

The army was not able to resupply its troops solely from Great Britain, and the British Government never seriously considered that possibility. The army could not be sustained strictly with what it obtained locally, either, but a proper balance was never achieved. The formidable logistics hurdles, coupled with the inconsistent and inefficient civilian hierarchy, ensured that whatever momentum British generals were able to generate would be extremely difficult to maintain.

Fighting on American Terms

The lack of sufficient reserve supplies, combined with cautious generalship, insufficient transportation, widespread corruption, and the lack of a coherent strategy to maximize the potential support of British loyalists in the colonies, ensured British failure.

These factors forced the British Army to fight a guerilla war—the only kind of war that the upstart United States could hope to win. This allowed American forces to delay the British while gaining a series of smaller victories, which eventually opened the door for France to become involved. Once France began to provide aid to the Americans, the war became too costly for the British to continue to prosecute.

Many of the successes with American logistics, however limited they were, can be attributed to General Nathaniel Greene. A Quaker, he served the Continental Army in numerous roles during the conflict: first as a 33-year-old major general; later, as Commanding General George Washington's quartermaster general; and finally, as commander of the Army of the South. He keenly understood the relationship between logistics and success on the battlefield.

On 16 June 1775, the Continental Congress ordered the creation of both a quartermaster general and a deputy quartermaster general. During this period, the quartermaster general acted like the chief of staff for the commander of the Continental Army, served as the prime supplier and businessman for dealing with civilians, operated and repaired supply lines (which included the roads over which suppliers traveled), transported troops, and furnished all of the supplies needed to establish camps when the troops reached their destinations.

As the third quartermaster general, Greene performed admirably despite strong resistance from civilians and businesses. By mobilizing the local economies to support his troops and emplacing supplies forward of the Army's movements, Greene was able to ensure that the Continental Army enjoyed better freedom of maneuver than the British did.

The Revolutionary War can be characterized to a large degree as a contest to control the oceans and waterways sufficiently so that one side could obtain logistics support by sea and deny support to their opponents. Since the British had to depend on getting supplies from England, support from the homeland became a critical capability for them. When that capability waned, it became essential for the British to develop strategies for obtaining logistics support from the North American continent. When the British failed to update their logistics concept of support to complement their tactical plans, it contributed to their eventual defeat.

The 19th century French general and military theorist Antoine-Henri Jomini observed, "Logistics comprises the means and arrangements which work out the plans of strategy and tactics. Strategy decides where to act; logistics brings the troops to this point." Military strategists, tacticians, and logisticians must remain aware of this tenet, which applies today as much as it did to the British over 200 years ago.

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The Case Against a Cargo Unmanned Aircraft System

BY CAPTAIN ANDREW P. BETSON

Would the military really benefit from the procurement of an unmanned aircraft system specifically designed for delivering supplies to troops in remote and dangerous locations?

More than a decade of continuous combat on noncontiguous battlefields has revealed shortcomings and inefficiencies in the U.S. military's set of vehicles, organizations, and doctrine. Some of these shortcomings have been addressed through the increasing use of unmanned aircraft systems (UASs). While they are best known as surveillance enablers and for their counterterrorism role (epitomized by strikes aimed at Al Qaeda and Taliban targets in the Federally Administered Tribal Areas of Pakistan), UASs are sometimes seen as a potential solution to logistics challenges faced in some of the world's harshest terrain.

This article will address why using UASs for logistics is a concern for U.S. forces, state some of the military's considerations for using logistics UASs, examine how UASs would be integrated into the Army logistics system, and outline some problems with the concept. Although unmanned technological integration is currently popular, it is not sensible for the Army to pursue a supply-oriented UAS when the funds for such a project could be used to augment current rotary-wing assets.

Why UASs?

The main reason that UASs are being considered for materiel resupply is the terrain and enemy situation in eastern Afghanistan. For example, a company at Forward Operating Base (FOB) Tillman on the Afghanistan-Pakistan border relies almost entirely on aerial resupply because of a combination of dismal infrastructure and dangerous threat conditions. The requirement for aerial resupply in the region doubles in the winter months as the weather further limits ground transportation capability. The spring thaw, however, does not necessarily mean a reprieve since bridges may be washed out by melting snow, further isolating units.

Although logisticians can build a supply warehouse to compensate for weather delays, this does not always mean that supplies make their way to the Soldier. When a patrol leaves FOB Tillman, for instance, it is limited to the supplies it can carry. When conditions change and the unit needs an emergency supply of water or ammunition, it is forced to seize high ground and wait on a helicopter or on the rare low-cost, low-altitude aerial resupply system. If enemy contact caused the condition, one can understand the appeal of an aircraft that can provide precise resupply while not placing a pilot at risk of being shot down.

The operational environment in Afghanistan also serves as a model for future conflict for the United States. It seems likely that conflicts involving ground forces will be unconventional (or hybrid) and take place in areas that lack advanced, modern infrastructure. Logisticians in such an environment typically lack a safe rear area characteristic of more conventional combat along more definable fronts. Even the existence of fairly modern railroads and highways does not eliminate the threat to such lines of communications posed by irregular fighting elements.

Considering a UAS for Logistics

The Army considers combined arms maneuver and wide area security as the main uses of a UAS, but it has further considered procuring a UAS capable of conducting tactical resupply. Field Manual Interim 4–93.2, The Sustainment Brigade, states, for instance, "The increased use of UASs as a supply distribution platform is of growing importance."

Although not doctrine, other sources for Army research and vision also mention a future role for distribution UASs. The Army Unmanned Aircraft Center of Excellence's 2010 concept paper, "U.S. Army Roadmap for Unmanned Aircraft Systems," defines efforts in the near term (5 years) to explore technologies to support sustainment and cargo operations. Official sources for research topics, such as the Army War College, suggest a UAS capable of carrying 60 pounds of supply to be considered as a tactical enabler.

The Army and Marine Corps have taken preliminary steps to implement this concept. Since 2008, both have observed demonstrations for an unmanned helicopter capable of carrying 3 tons at sea level and 2 tons at 15,000 feet. Lockheed Martin's optionally manned K–MAX helicopter is currently being tested by the Army and the Marine Corps in Afghanistan. It can operate for 12 hours and fly approximately 95 miles per hour with a load. Proponents argue that each K–MAX in the air reduces the number of trucks in dangerous supply convoys and that 16 to 20 K–MAX aircraft theoretically could handle the resupply mission in Afghanistan.

Why Not UASs?

The prevailing attraction of unmanned systems and the desire to keep as many people out of harm's way as possible support embracing a cargo UAS for future supply distribution. Organizational considerations and lift capacities, however, reveal why this should not be the case.

The successful performance of surveillance UASs, such as the RQ–11 Raven and RQ–7 Shadow, support the further implementation of similar platforms for other uses. The Raven and Shadow are lightweight systems that can be launched in austere locations (and even by hand in the case of the Raven). This allows the systems to be decentralized within the defense framework. Shadows are brigade-level assets belonging to the military intelligence company of a brigade's special troops battalion. Ravens are further decentralized, assigned to infantry companies (although some maneuver battalion commanders centralize them at the battalion level). This decentralization provides effective responsiveness for surveillance and reconnaissance.

The size of a UAS capable of carrying a worthwhile load of cargo could not be decentralized like these surveillance UASs. Lockheed's K–MAX, for instance, weighs 7,000 pounds (without a load), is 52 feet long, and has a wingspan of 48 feet. That makes it longer than both the Army's scout helicopter, the OH–58D Kiowa Warrior, and its attack helicopter, the AH–64D Apache Longbow. Such an aircraft requires an airfield and significant maintenance in a hangar. This, combined with pilot training requirements, would eliminate the potential to task-organize them in a sustainment brigade, let alone within a combat brigade.

The lift capacity of a UAS does not come close to that of existing cargo delivery options. Stating that a cargo UAS takes troops off the road incorrectly implies that the lift capacity approaches that of existing ground distribution capabilities. Assuming that cargo UASs would have to be organized outside of the combat brigades, the comparative distribution units would be those within the combat sustainment support battalions in the sustainment brigade. Light-medium and medium truck companies provide 190-ton and 395-ton capacities, respectively, for single lifts. The dramatic difference in lift capacity weakens the argument that a cargo UAS capability could replace or eliminate ground convoys.

When compared with current tactical aerial delivery vehicles, the K–MAX model fails to measure up. Assuming a combat patrol needs supplies and that Air Force delivery systems are unavailable, Army and Marine Corps helicopters are the delivery platform of choice. The K–MAX has only a 2-ton capacity, while a UH–60 Blackhawk helicopter can lift 4.5 tons and a CH–47 Chinook carries 13 tons.

These arguments seem to reinforce the idea that the capacity of the cargo UAS should be limited to 60 pounds. Perhaps the assumption is that limiting its capacity to 60 pounds of cargo would allow the UAS to be similar in size to the Shadow or Raven, and therefore, it could be decentralized. Although some examples can surely be given for needing a UAS to deliver only 60 pounds worth of cargo (such as a maintenance part to recover a vehicle), most circumstances would require much more than 60 pounds of cargo. To resupply a standard infantry platoon of 30 Soldiers, a 60-pound load would include approximately 1 bottle of water per person or just less than 2 magazines of unlinked 5.56-millimeter ammunition per person. This hardly demonstrates a revolutionary means of tactical resupply.

Although the concept of UASs continues to entice visionaries of future warfare and those interested in limiting Soldiers' exposure to danger, the comparative lift capacity and the organizational considerations for UASs capable of carrying a useful load make the procurement of a new cargo UAS seem ill advised. The military should continue to explore modifications to its current fleet to allow existing aircraft to be flown remotely.

One cannot forget, however, that any time an unmanned system is shot down, the sensitive technology and materiel on board demands its urgent recovery or destruction. Instances with downed UASs during operations in Iraq and Afghanistan have revealed that this often requires a patrol of troops on the ground—a risky task for recovering something that was meant to take troops out of harm's way.

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Planning and Executing Battalion Training and Certification

BY LIEUTENANT COLONEL LILLARD D. EVANS

Responding to the direction and vision of the commander of the 13th Expeditionary Sustainment Command, Brigadier General Terence J. Hildner, the 49th Transportation Battalion developed a training and certification program for companies and smaller units deploying to Afghanistan.

With the drawdown of Operation New Dawn in Iraq and Operation Enduring Freedom in Afghanistan, the Army is in the process of reshaping its structure for the future. Throughout both wars, the sustainment community has faced turbulence in the mission command of subordinate units. Over the past 10 years, sustainment battalion- and brigade-level headquarters have deployed as stand-alone elements. As a consequence, these headquarters developed unity of command both when transitioning their subordinate companies and detachments before deploying and, once deployed, after receiving their attached units.

Over the years, many sustainment battalion- and brigade-level headquarters inactivated. Consequently, the Army found that many battalion headquarters were providing mission command to larger and larger formations. My former battalion, the 49th Transportation Battalion (Movement Control), 4th Sustainment Brigade, grew from 200 to 1,300 Soldiers and provided mission command to 10 company- and detachment-level organizations. The battalion also had to create a support operations section in order to manage a massive support mission at its home station at Fort Hood, Texas.

Many of the sustainment battalions that receive additional units in response to deployments essentially become brigade-sized elements. A normal brigade staff has over 200 Soldiers with several special staff functions. Battalion staffs, by contrast, consist of 50 to 70 Soldiers depending on the type of battalion.

Furthermore, the sustainment community will absorb more force structure changes in the future with the inactivation of many more battalion-sized headquarters. In many cases, the remaining battalion headquarters do not have the requisite knowledge to train many of the subordinate units that they will inherit. As a movement control battalion, we were faced with that proposition. We succeeded primarily because of a strong training and certification program of units deploying or preparing to deploy.

Brigadier General Hildner's Leadership

With a clear understanding of the turbulent environment, the late Brigadier General Terence J. Hildner set a vision for the 13th Sustainment Command (Expeditionary) upon his arrival at Fort Hood in August 2010. [Brigadier General Hildner died of natural causes while on duty with the command in Afghanistan.] His vision was to train and then certify the training of each unit assigned to the sustainment command. This included units preparing for deployment as well as units conducting local training events.

Brigadier General Hildner also focused on subordinate battalions receiving culminating training events, such as training at the National Training Center at Fort Irwin, California, or the Joint Readiness Training Center at Fort Polk, Louisiana. If those training events were not compatible with a battalion headquarters' training objectives, he ensured that the battalion would participate in a Unified Endeavor exercise or a command post exercise–sustainment. Most importantly, he required subordinate battalions to develop training events to certify units below the company level, such as platoons, detachments, and teams.

Brigadier General Hildner applied his experience at the Army Combined Arms Support Command and the Army Training and Doctrine Command to developing the training and certification program. His vision and passion were obvious.

Certifying Training Events

To execute Brigadier General Hildner's guidance and intent, the 49th Transportation Battalion developed certifying training events for movement control teams (MCTs), finance detachments, and casualty liaison teams (CLTs) using situational training exercise lanes. We conducted alert training events to prepare the battalion and two subordinate units for the command and control chemical-biological-radiological-nuclear response element and global response force missions.

We also were notified that our petroleum company would deploy to conduct a convoy escort mission in Afghanistan. So we developed and executed a battalion gunnery program, much like a maneuver battalion, in order to certify 24 convoy escort teams (CETs) according to Training Circular 4–11.46, Convoy Protection Platform Gunnery, tables I through IX.

The battalion created an MCT Academy to train MCTs on their technical skills. We also focused on training the MCTs on active web-based systems to assist in movement management and control. Finally, we developed a situational training exercise that was held at the end of the 2-week instruction period to test the Soldiers' skills. (See a related article, "The Training of Movement Control Teams," in the March–April 2012 issue of *Army Sustainment*.)

After an Army Audit Agency audit of the financial management support company, Brigadier General Hildner directed the battalion to train and certify finance detachments locally before the detachments executed their longstanding finance community Diamond Saber exercise. We trained and certified the finance detachments on customer vendor services and disbursing through a weeklong situational training lane.

With the upcoming deployment of two to four four-man CLTs, we created and conducted a CLT situational training exercise lane in order to certify each team on its core operations before it deployed in support of a level III medical training facility.

The following five articles provide more insight and details on each training event and the certification process. Each unit, along with the 49th Transportation Battalion staff, planned and coordinated for many months to ensure that the training and certification process could be a stand-alone training event if no other training was available.

With clear vision, guidance, and intent provided by Brigadier General Hildner, the 49th Transportation Battalion was able to plan, create, and develop training events to ensure the success of our companies, platoons, detachment, and teams.

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In Memoriam

BRIGADIER GENERAL TERENCE JOHN HILDNER

20 FEBRUARY 1962—3 FEBRUARY 2012

COMMANDING GENERAL

13TH SUSTAINMENT COMMAND (EXPEDITIONARY)

19 AUGUST 2010—3 FEBRUARY 2012

DIED IN KABUL, AFGHANISTAN



Sustainment Battalion Convoy Protection Platform Gunnery

BY CAPTAIN TIFFINEY N. BROOKS

Sustainment units often must provide their own protection for supply convoys but seldom are trained to do so. Using a new convoy protection training circular, the 49th Transportation Battalion (Movement Control) conducted gunnery training before deploying to Afghanistan.



A gunnery crew returns from the range after completing a gunnery table.

On today's battlefield, sustainment organizations with minimal self-defense capabilities are often exposed to direct combat. These organizations often lack sufficient training to ensure their survivability. Although convoy protection platforms (CPPs) are not new to the military, sustainment units are now beginning to establish and execute doctrine on how to use whatever platforms are available to successfully engage threats.

In April 2010, the Army Combined Arms Support Command released Training Circular (TC) 4–11.46, Convoy Protection Platform Gunnery, which outlines specific training requirements for sustainment units. Although this manual provides sustainment units with a great foundation for training convoy protection crews and certifying convoy protection platforms, it provides little detail regarding the execution of higher-level gunnery tables (GTs), such as section gunnery. TC 3–20.21.1, Individual and Crew Live-Fire Prerequisite Testing, and Field Manual (FM) 3–20.21, Heavy Brigade Combat Team (HBCT) Gunnery, complement TC 4–11.46, especially for planning and executing section gunnery (GTs VII to IX).

The gunnery program enables sustainment units to train and deploy convoy escort teams (CETs) with CPPs. Program participants become more proficient at implementing tactical procedures for direct combat using their assigned weapons to survive in any area of operations. The training enables CPPs to bring intense, accurate, and deadly fire on enemy targets.

The vehicle gunnery crew (VGC) gunnery program should be divided into four phases—preliminary, basic, intermediate, and advanced gunnery—in order to develop individual Soldiers and VGCs in a progressive manner. They should be sequenced to provide quality VGCs within resource constraints. Successful completion of all gunnery phases prepares the unit for a section gunnery that is an exercise intended for platoon-sized elements. (A section is made up of two CPPs.)

Convoy Protection Platforms

A CPP is one VGC, typically consisting of a driver, vehicle commander, and gunner. It is crucial for this crew to maintain its integrity throughout the training and gunnery execution process so that it can develop as a whole, maintain continuity, and allow the vehicle commander to develop and maintain mission command. Crews are regarded as VGCs until they successfully complete the basic gunnery phase and have qualified on GTs I through VI. After successfully completing the gunnery skills test (GST), GT I, GT II, GT III, GT V, and GT VI, the crew becomes a certified CPP.

To provide a level of stabilization that facilitates an accurate shoot-on-the-move capability, a CPP uses vehicles that have mounted crew-served weapons without fire-control systems.

Convoy Escort Team

A CET is made up of at least four CPPs. These crews are groomed to function as one cohesive unit dedicated to protecting the force and ensuring the success and safety of the mission. This entails more than just going out to the range 1 day and firing a few bullets. The certifying event for CETs is the section gunnery.

Planning

The key to a successful gunnery is adequate preparation, effective presentation, practice, and thorough evaluation. Because of the challenge of coordinating gunnery training requirements (such as forecasting ammunition 90 days out and requesting facilities and training aids) with the available resources, the planning process should begin at least 6 months before the execution of the gunnery. The necessary resources, such as facilities, training products, simulators, ammunition, and any other resource critical to the execution of the gunnery, should be acquired as soon as possible. Coordination should be continuous from long-range planning through short-range and near-term planning and training execution.

The senior or master gunner should be at the forefront of the planning process. When planning the gunnery, the senior gunner is the most valuable asset. The senior gunner is a key player in gunnery training because he serves as the subject-matter expert.

Training Plan

The master gunner and the gunnery officer-in-charge (OIC) should create a gunnery training plan 6 months before execution, if possible. The training plan will allow the unit to maintain a consistent mission focus, coordinate with task-organized supporting organizations, and focus on the correct timeline. The 8-step training model (plan, develop an operation order, teach, perform a reconnaissance, rehearse, execute, conduct an after-action review, and re-execute) should be used.

A sample 6-month gunnery training schedule follows.

6 months out. Conduct senior gunner certification, and begin the planning process, to include acquiring resources, forecasting ammunition needs, and conducting simulator training.

5 months out. Conduct preliminary marksmanship training and qualification, and conduct diagnostic GST and GT I simulator training.

4 months out. Conduct classroom instruction, driver's training, and simulator training, and tentatively schedule range maneuver areas and training devices.



A gunnery crew conducts after-action review.

3 months out. Conduct record GST and GT I simulator training.

2 months out. Conduct GST and GT I simulator training (gateway to the live-fire table), and lock in use of range maneuver areas and training devices.

1 month out. Conduct OIC, vehicle crew evaluator (VCE), and range safety officer certification and GT II simulator training.

Proper planning allows for tough, realistic, and intellectually and physically challenging gunnery training. Realistic gunnery training will build competence and confidence by developing and honing skills while inspiring excellence by fostering initiative, enthusiasm, and eagerness to learn.

Preliminary Gunnery Phase

Training for gunnery is conducted in four phases and encompasses individual and collective training. The first phase is the preliminary phase, which includes the GST and GTs I and II. During this phase, individual Soldiers and VGCs are trained using classroom instruction, simulators or virtual training, and home-station training.

Simulators are essential in the "walk" phase of the gunnery. They are used most during the GST and GT I. Simulators provide realistic training and serve as a platform for the training and evaluation of the GST. The GST evaluates each crew member's ability to execute selected gunnery-related skills, and GT I evaluates the entire vehicle crew's ability to execute selected tasks. (A list of the required tasks can be found in TC 4–11.46.)

Simulators such as the Warrior Skills Trainer (WST) and Close Combat Tactical Trainer (CCTT) allow crews to build the confidence and muscle memory needed to be successful in the live-fire execution. At the simulators, the crews start to see the culmination of all the individual and collective tasks they have trained on thus far. These simulators provide an opportunity for crews to conduct vehicle-mounted combat tasks in a virtual environment. The CCTT and WST can serve as the final gateway for crews moving forward to a live-fire gunnery range.

The 49th Transportation Battalion (Movement Control) developed a training and evaluation standard that served as a tool to determine if a crew was ready to move from simulation to blanks and live fire. The battalion saw a positive correlation between the amount of time a crew spent at the simulators and their success during live fire.

The purpose of GT II, or the crew proficiency course, is to prepare the VGC for live-fire qualification. VCEs must consider the VGC's ability to determine the engagement time to quickly engage threat targets in order to successfully complete GT II and proceed to GT III, the basic gunnery phase.

Gunnery Phases

The basic gunnery phase encompasses GTs III through VI and develops skills learned in the preliminary gunnery phase. This is the first time VGCs fire live ammunition from their respective vehicle platforms. During GT VI, crews are certified as CPPs in order to transition to the intermediate gunnery phase.

The intermediate gunnery phase is also referred to as section gunnery. This phase includes tables VII to IX and develops coordination, fire distribution, and control during section practice (GT IX).

The next phase of gunnery is the advanced phase. Its purpose is to develop coordination and fire distribution and control during convoy and CET qualification (GT XII) and base defense operations.

After successful completion of the basic, intermediate, and advanced gunnery phases, commanders can elect to conduct collective gunnery. Collective gunnery is comprised of the intermediate and advanced gunnery phases. Collective GTs (IX and XII) are designed to test the unit's and leader's ability to take knowledge learned from previous GTs and apply it to tactical combat scenarios at the section-, platoon-, and company-team levels. The 49th Transportation Battalion did not conduct the collective gunnery phase.

Scoring

Three different forms are used to document all training and ultimately factor scores from each gunnery table. These results should be maintained and compiled to determine statistics and unit weaknesses. The statistics help to develop future firing scenarios and are maintained by the master gunner, small arms master gunner, or senior gunner.

VCEs must consider multiple factors when scoring a VGC, including the different timing matrices based on the vehicles' posture (defensive or offensive). To successfully complete a GT, crews must score at least 700 points in 7 engagements on the respective table. To qualify on an engagement, crews must score at least 70 points on that engagement after any deductions.

Ammunition Allocation

Determining the total amount of ammunition needed for gunnery training can prove to be quite a challenge. Ammunition requests are based on firing scenarios. TC 4–11.46 provides Department of the Army Pamphlet (DA Pam) 350–38, Standards in Training Commission, as a reference for determining how much ammunition is needed for gunnery training.

DA Pam 350–38 allocates 1,500 rounds for gunnery qualification all the way through the advanced phase. However, FM 3–20.21 allots 2,450 rounds just for the basic phase. Furthermore, the HBCT gunnery manual allocates 50 rounds per target. The TC does not break down the number of rounds per target.

Since sustainment units can only engage two targets per engagement, they are limited to 100 rounds per engagement. There are a total of ten engagements per GT. The 49th Transportation Battalion requested 4,000 rounds per crew in consideration of the possibility of crews having to re-engage one or more tables. The battalion experienced no ammunition shortages or large excess with this forecast.

The 49th Transportation Battalion's Experience

Because of the high operating tempo for sustainment units, it is imperative that gunnery be a battalion-level event. Balancing the gunnery training requirements and garrison mission requirements is quite a challenge. Therefore, it is important for the battalion section responsible for the training (usually S–3) to work closely with the unit commander and first sergeant.

I recommend qualifying only 6 to 8 crews at a time. However, the 49th Transportation Battalion was faced with the challenge of training and certifying 24 crews. Six weeks were allocated for the gunnery, and 5 of those weeks were dedicated to crew certification on GTs II, III, V, and VI. Approximately eight crews per week went through certification. One week was dedicated to section gunnery for CET certification.

Preparing for the Gunnery Range

Each unit of the battalion being certified was provided with a detailed training plan created by the master gunner and gunnery OIC. The plan included collective and individual tasks, a training calendar, and a timeline with gates (suspenses) by which certain training or tasks had to be completed based on the battalion commander's intent. The unit was also given a suspense to provide the names of the crews to the battalion. After that suspense, all crew changes had to be approved by the battalion commander.

The unit was responsible for updating its training plan and ensuring that everything was entered into the Digital Training Management System. The unit was required to provide the master gunner with the exact date and time it would be executing the training so that he could oversee it; the master gunner would be present at all live-fire range events.

The unit was also responsible for training itself with the assistance of the master gunner. The battalion coordinated driver's training, high-mobility multipurpose wheeled vehicle egress training, weapons qualification on tripod, and weapons familiarization with the weapons mounted on the vehicle.

At the same time, the gunnery OIC and master gunner identified the range detail requirements, including the VCEs. Approximately 30 days before the gunnery started, the master gunner began training the VCEs. Two weeks before the gunnery started, the VCEs were assigned to the CCTT and WST simulation training. At this time, the VCEs began to make their first assessment, using the CCTT and WST evaluation created by the 49th Transportation Battalion. This also allowed the VCEs to see how a crew functions as a VGC. It allowed the VCEs to identify potential risks and make necessary adjustments before live fire.

Preparation of Crews

For crews to move on to the standard GT II set forth by TC 4–11.46, a virtual qualification had to be created; it had to have an evaluation form to capture the standards necessary to meet the virtual trainer certification. The qualification guidelines closely paralleled those of the actual live-fire GTs. The only major difference was that the tasks were not timed because the virtual trainer was available to accommodate gunnery for sustainment units. However, the evaluation form that was created for sustainment units contained all the criteria that the live-fire tables have by task.

The guidelines were that the crews had to meet the minimum proficiency levels outlined in the TC for 10 tasks, including vehicle commander engagements, defensive and offensive engagements, moving targets, short halts, a short-range engagement, and a long-range engagement. Other conditions evaluated were the defilade and enfilade, the proper commands given, and the timeliness from the last command given by the tower to the termination command given by the vehicle commander. Once the evaluation form was created, the VCEs were trained on how to use it and were evaluated on its



Brigadier General Terance J. Hildner awards Soldiers with a coin in recognition of a job well done on their gunnery training.

use for 2 days for a total of approximately 16 hours.

The only obstacle that was not resolved was that the virtual trainer was not tailored to sustainment unit gunnery. This obstacle included the system's lack of scenarios with the capability of tracking the open and close times, delay times, defilade and enfilade times, and moving targets.

Crew Qualification

Successfully certifying all of the crews on all GTs required many personnel and much effort by everyone involved. The success of the gunnery depended on the careful planning and staging of all training required to qualify the crews for the life-fire GTs. This involved careful selection of the right tasks to train on, weapons to be used, the right resources, and most importantly, time management.

Another important element was the leaders (master gunner, gunnery OIC, range OIC, range noncommissioned officer-in-charge [NCOIC], company commander, first sergeant, and executive officer) conducting in-process reviews to ensure that all that was needed was being acquired. This also included selecting the right range OIC, NCOIC, and safety officer to put the range in motion. Once that was accomplished, all that was needed was for the crews to be present at all of the training and be certified in the respective GST and GT I tasks.

Getting Started

Week 1 of gunnery began with eight crews. While these 8 crews were executing GTs II, III, V, and VI, the remaining 16 crews continued to go through simulation training. It was important for all crews to remain focused on gunnery until completion, and because of time constraints, it was imperative that the other crews be ready to replace a crew should a crew not be able to complete the gunnery.

Despite prior planning, week 1 had a slow start because the vehicle platforms were not ready on time for pickup. This had a large effect on the gunnery because it affected the battalion S–6 section's ability to ensure that all requested communications equipment was with the vehicles, fully mission capable, and compatible with the range radios prior to gunnery execution. During the first couple of days of gunnery, several communication issues led to a mandatory cease-fire until the issues could be resolved. This affected the crews' momentum and confidence and resulted in several hours of lost training time. It also affected the master gunner's ability to proof the range one last time with the platforms before gunnery execution.

Gunnery Table II

Once the issues with the vehicles and communication were resolved, crews began GT II, dry fire. Crews transitioned from GT II to GT III, live fire, when the VCEs and the master gunner were confident that the crews were proficient in identifying and engaging targets using the proper firing commands while conducting short halts.

The gunner (and vehicle commander when they were firing) was evaluated on his ability to transition the weapon to appropriate sectors of fire in order to prevent friendly fire and accurately engage enemy targets. Drivers were evaluated on their ability to maneuver the vehicle safely throughout the course and from enfilade and defilade positions.

Once the master gunner was confident that the crews were proficient in these skill sets, the crews transitioned to live fire. All crews successfully completed GT II.

Gunnery Table III

GT III proved to be the most difficult table for most of the crews. During week 1, none of the 24 crews received a Q1 (qualification the first time through) and only 8 of the 24 crews receive a Q2 (qualification the second time through). During the second time through, crews only fired the engagements on which they had not qualified.

Subsequent crews were required to re-engage the entire table, and they did so successfully. I believe the crews had the most difficulty with this table because it was the first time that they had to put all the skills they had learned together with the difficult task of quickly engaging actual targets, including some that were moving. The crews that achieved a Q2 on GT III did very well, with scores ranging from 743 points in 8 engagements to 887 points in 9 engagements.

Gunnery Tables V and VI

Despite GT V having a more difficult scenario, with further targets and more moving targets, this was by far the crews' best table. By GT V, the crews' confidence was up and their skill sets were well developed, leading to outstanding scores. Five crews achieved a Q1, with scores ranging from 750 points in 7 engagements to 935 points in 10 engagements. Eleven crews achieved a Q2, with scores ranging from 712 points in 7 engagements to 960 points in 10 engagements.

The crews were also very successful on GT VI, with 6 crews obtaining a Q1 qualification and 11 crews qualifying Q2. Four of the crews surpassed the sustainment unit crew record that was held by a crew in a sister battalion. The Q1 scores for GT VI ranged from 721 points in 7 engagements to 864 points in 9 engagements. The scores of the 11 crews who obtained Q2 scores on table VI ranged from 742 points in 8 engagements to 864 points in 9 engagements.

Section Gunnery

Section gunnery is no more than a lanes evaluation culminating with a certifying live-fire exercise. The tasks are selected based on the unit's mission-essential task list or mission to be conducted if deploying. Once the tasks are selected, the training is set up for those specific tasks and trained accordingly.

The overall section certification is based on a two-part evaluation. One part covers the tasks that have been selected for certification and are evaluated in a T (trained), P (needs practice), U (untrained) evaluation format. The other part covers live-fire certification and is based on the same minimum proficiency levels as the crew gunnery, with a four- or five-vehicle section participating as the CET. The only difference is that the CET commander assigns the sectors of fire and authorizes the crews to fire within those sectors upon enemy contact.

The scoring is based on the number of targets presented and the number of targets hit. The baseline for the target scoring requires that 50 percent of the targets engaged must be hit. This percentage is then added to the T, P, U evaluation. The section must have a total of at least 70 percent for the evaluated tasks and targets hit.

The 49th Transportation Battalion was the first sustainment unit to complete section gunnery. The battalion's section gunnery consisted of five sections with four to five CPPs in each section. The evaluation began with the unit commander being alerted through a notification sequence from his higher echelon (the battalion S–3 section). Each section had a set time that it was to be at the motor pool with 100-percent accountability to receive further guidance.

The evaluators (two captains and one major, since evaluators had to be at least the same rank as the company commander) met the sections at the motor pool where the assessment would begin. The evaluators issued an operation order to the section commander, who in turn conducted a convoy brief using a sandtable. The section commander was evaluated on his troop-leading procedures. Once that phase was complete, the section conducted a tactical road march (which was several miles) to the section gunnery range. The section was still being evaluated by the evaluator, who rode in the vehicle with the section commander.

After arriving at the section gunnery range, the evaluation process paused so that crews could receive a safety brief and get oriented to the range and so vehicle safeties could enter each vehicle. The evaluator served as the safety in the section commander's vehicle. After the safety brief, the crews mounted their vehicles and the evaluation process continued. The crews drew their ammunition and executed the live-fire portion of GT IX.

After the live-fire portion, the safeties cleared the weapons and the section conducted a final situational training exercise lane, where they were evaluated on selected battle drills and reports. All five sections successfully completed GT IX.

Crew gunnery is a long, drawn-out process that requires extensive planning and preparation. However, if it is done according to the TC guidelines, any unit can conduct it to standard. The 49th Transportation Battalion never deviated from the TC. It conducted the gunnery the way every unit should.

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Training and Certifying Companies for C2CRE and GRF Missions

BY MAJOR MARK D. DALEY

As the 49th Transportation Battalion (Movement Control) transitioned into a combat sustainment support battalion, it began to manage seven additional companies. Of the seven, one company was identified to support the command and control CBRN [chemical, biological, radiological, and nuclear] response element (C2CRE) and one was tasked as part of the global response force (GRF).

The vision and directives of the late Brigadier General Terence J. Hildner, commanding general of the 13th Sustainment Command (Expeditionary) (ESC), indicated that training for the C2CRE and GRF missions would comply with the training and certification directives for both mission sets. Both the C2CRE and the GRF units would be ready to deploy without notice in response to activities deemed necessary by the Department of Defense.

Each company had to accomplish specified training requirements according to its mission set (C2CRE or GRF). The battalion operations officer worked with the company commanders to develop initial training plans. Once approved by the battalion commander, the training was put into the Digital Training Management System (DTMS) and the battalion S–3 worked with the brigade, ESC, and corps staffs to ensure that the units' training received priority and was resourced.

The training was conducted over 90 days. During this time, the 49th Transportation Battalion led a series of alerts to focus the unit on back-to-basic operations and to prepare the C2CRE and GRF companies for activation. Training progress was reviewed weekly and reported to the Army Forces Command through the brigade, ESC, and corps.

The battalion developed an alert notification sequence (N-hour sequence) and incorporated it into the battalion's tactical standard operating procedures (TACSOP). The alerts were unannounced, and each required more from the Soldiers than the previous alert had.

The N-hour sequence focused on company- and battalion-level activities conducted within the first 12 to 24 hours after being alerted. According to the battalion TACSOP, Soldiers were required to report with their deployment bags and in complete combat uniform within 2 hours of notification. Upon arriving, the Soldiers reported to their companies, drew weapons, and immediately continued to their designated areas as platoon leaders directed.

To prepare their vehicles for convoy, drivers conducted preventive maintenance checks and services (PMCS) and initiated alert dispatches. Once the PMCS were complete, first-line supervisors conducted precombat checks and inspections. Each platoon leader then verified that his platoon was ready, and the platoon rolled out of the motorpool while being evaluated by a battalion staff team. Staff members were also staged at a designated location to receive the platoon and verify its dispatches and PMCS. The staff also verified the sub-hand receipts of the platoon leader and evaluated each platoon on its core mission.

The battalion's headquarters and headquarters detachment also went through alert procedures. To monitor the entire process and ensure the units were in compliance with the TACSOP, the staff established a fusion cell led by the battalion executive officer. Members of the staff were at designated locations to monitor company activities and collect feedback that would later be provided to the battalion and company commanders during after-action reviews.

The battle captain and noncommissioned officer consolidated and issued orders and ensured that the battalion remained on schedule. At the end of the 2-hour recall, the primary staff and company commanders met with the battalion commander to identify issues and receive additional guidance. After-action reviews were conducted after each alert with the battalion staff and company command teams.

Soon after N-hour sequence training, each company was tested on its ability to deploy, establish an area of operations, exercise mission command, and conduct its assigned mission. The company assigned as the C2CRE participated in an exercise in Indiana, and the company assigned to the GRF mission participated in an exercise at the National Training Center at Fort Irwin, California.

Before deploying, each company was certified to deploy through the battalion's notification process. Both units completed the required training and were ready to assume their missions on time. Each company deployed with minimal issues and collected several lessons learned, many centering on agencies and activities outside of battalion and company control. Nonetheless, each company was trained and certified using the directed training requirements in support of national security and performed well.

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A Casualty Liaison Team Prepares for Deployment

BY SECOND LIEUTENANT ERIC L. ROSS

Over the past 10 years, the Army has embraced modularity, replacing functional brigades with brigade combat teams. Supporting branches have also embraced modularity, but many branch modular formations do not allow for the deployment of battalion-level or company-level headquarters. Many branches instead deploy units in detachments or teams. This is particularly true of the Adjutant General's Corps.

The Adjutant General's Corps previously had battalion-level formations in the form of personnel support battalions. However, the personnel support battalions have been inactivated and human resources (HR) companies have been created. These companies are designed to conduct three primary missions: casualty liaison at level III medical treatment facilities, postal operations, and reception, replacement, return to duty, rest and recuperation, and redeployment (R5).

Early in Operation Iraqi Freedom, HR companies deployed as company-level organizations. However, over the past 5 years, many HR companies have been tasked to deploy platoons and teams to meet specific needs in the Iraqi theater. That made providing training for two- or three-man teams and platoons a challenge for the companies to manage.

HR companies depended on Silver Scimitar, a Reserve component training event, to train for deployment. Silver Scimitar usually is conducted twice a year at Fort Devens, Massachusetts. This training event certifies each HR company to ensure that it is trained to standard for its deployment. It is imperative that local commanders create training events for their subordinate platoons and teams before they attend Silver Scimitar.

CLT Situational Training Exercise

In order to train the casualty liaison teams (CLTs) for deployment, the 502d HR Company, 49th Transportation Battalion (Movement Control), 13th Expeditionary Sustainment Command, participated in its first combined CLT situational training exercise on 25 August 2011. The training was a 1-day event that tested the unit's skills in conducting and providing support for casualties in theater. As a platoon leader and planner for the training exercise, I coordinated the event with personnel from the 1st Medical Brigade and the Fort Hood Medical Simulation Training Center.

The training included 50 personnel from the 502d HR Company and 10 from the 1st Medical Brigade. The emphasis was on placing the CLT within the patient administration section to act as a liaison for the military and civilian patients in the theater and to initiate the casualty notification process to the patients' next of kin.

Two noncommissioned officers were the subject-matter experts who evaluated the teams. Both were HR company members and veterans of CLT operations in the Iraqi theater. Each team had to be able to obtain accurate information from each casualty, enter the information into the Defense Casualty Information Processing System (DCIPS), and send an initial report.

A Mass Casualty Scenario

The Fort Hood Medical Simulation Training Center provided realistic scenarios that placed Soldiers in stressful situations and allowed them to interact with doctors and nurses while trying to receive information about a casualty. The center's staff simulated a mass casualty scenario that resembled chaos in a theater hospital. When patients arrived at the theater hospital, a CLT member would speak with each patient and obtain as much information as possible about the incident.

As soon as the doctor gave his diagnosis of the severity of the patient's injuries, the CLT member completed and sent a DCIPS folder report to the Department of the Army or the patient's service component so that his next of kin could be notified. After the report was sent, the CLT made hourly checks to the intensive-care ward or unit to check on the patient's status or, in the case of more critical patients, stability.

With the cooperation of CLT veterans, the 1st Medical Brigade, and the Fort Hood Medical Simulation Training Center, the CLTs were trained for CLT operations in the theater. The expertise of the veterans enabled us to certify the teams on their core competence and technical skills using the DCIPS, which is the Army system of record. We also took advantage of Fort Hood's deployment programs to ensure that the teams were trained on tactical skills also required for deployment. Because each team consisted of five Soldiers, it was advantageous to use the individual replacement training program to train them on their tactical skills.

With the combination of the situational training exercise lanes and individual replacement training, the battalion commander was able to certify the teams for deployment. As we move forward in the future, this combination of training will serve all small teams. The Army has major training events for large formations. However, local commanders must develop training opportunities for smaller units and certify those units for deployment to hostile environments.

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Training and Certification for Convoy Escort Teams

BY CAPTAIN JEFFREY B. FREMBLING

After plans for a Quartermaster company to deploy to Afghanistan to provide convoy security changed, the unit continued preparations for a gunnery exercise to certify crews for convoy protection platforms.

"We are Soldiers first, logisticians second!" This quickly became my mantra as I prepared to assume command of the 53d Quartermaster Company, a bulk petroleum support company in the 553d Combat Sustainment Support Battalion at Fort Hood, Texas. The company had recently received orders to provide 42 guncrews for convoy security in Afghanistan—a mission that I had hardly expected when I graduated from the Petroleum Officer Course. But with forces being spread thin between two combat theaters, the logistics community was being asked to provide its own security. As reality set in and I realized that my "fuel command" would become a "gun truck command," the company got to work, training long days and nights in order to be prepared to protect and defend ourselves and others.

A Change in Mission

We began training in early June 2011. We started with basic marksmanship practice, driver's training, vehicle rollover drills, and familiarization with Training Circular (TC) 4–11.46, Convoy Protection Platform Gunnery. We worked closely with the 553d Combat Sustainment Support Battalion's S–3 and the battalion master gunner to develop a road-to-war plan that would allow us to meet our deployment timeline. Included in that plan was a full-blown gunnery exercise to ensure that our crews were properly trained and qualified to provide convoy security.

Shortly after finalizing the plan, I was told that the company had been "off-ramped." Despite the fact that we no longer had a gun truck mission, we were told to execute our gunnery program in order to verify the proof of principle of crew certification for convoy protection platforms.

Driver's and Weapons Training

Beginning in early June, the company scheduled preliminary training events. We had to develop the 24 vehicle guncrews that would train together and complete the qualification course as a team. After setting the initial crews, we started the task of completing the basic requirements. We scheduled mine-resistant, ambush-protected vehicle (MRAP) and MRAP all-terrain vehicle (M–ATV) driver's training, basic weapons qualifications, crew-served weapons ranges, and the initial training for executing gunnery operations.

After completing the initial driver's training, the company began the task of completing the necessary weapons qualifications. We executed basic rifle marksmanship ranges, followed by advanced rifle marksmanship ranges. The deployment order had also included the requirement for the company to become qualified on the M2 machinegun, MK19 grenade launcher, and M240B machinegun.

As a command, we decided to focus on the use of the M240B. The M240B is not an organic weapon to a petroleum, oils, and lubricants company, so we not only had to borrow the weapon systems from our sister companies but we also had to qualify crews on weapons that my Soldiers had not handled before. Once we were all qualified on our basic weapon systems, we moved on to the crew-served weapons.

The company spent a full week qualifying gunners and all members of the vehicle guncrews on the weapon systems. Each guncrew was required to attend the ranges as a crew and to work together to qualify. The crews worked on the required crew voice commands, and the vehicle commanders used the range time to evaluate each member of the crew on his capabilities on the range. In some cases, the vehicle commanders moved the designated driver to the gunner's position after determining that the driver was a better gunner.

Learning to Work Together

Once training on the basic Soldier skills of driving and shooting was completed, we began developing the crews' ability to operate and communicate together



A Soldier prepares a vehicle for the gunnery range.

effectively. This was accomplished at Fort Hood's Warrior Skills Training Center (WSTC). The WSTC is a large complex of simulators and training aids that enabled our Soldiers to work on the vehicle commands, build the necessary confidence, and tie all of the required skills together. The WSTC provided a simulation of the environment that we would experience once we got to the range. It also gave the vehicle commanders an additional opportunity to evaluate the crews and make adjustments.

We were able to use the WSTC for a month leading up to the actual execution of the gunnery exercise. During this time, the vehicle guncrews bonded together and developed a real sense of "team." I noticed that, within the company, the crews developed a platoon, section, and individual crew competition mentality. By the end of our time in the WSTC, the company was very motivated to get to the execution phase of gunnery.

The trainup for the range execution culminated with the vehicle guncrews completing a situational training exercise and an evaluation of their abilities to identify vehicles and ammunition and break down and reassemble the M240B.

The Gunnery Tables

The execution of the gunnery exercise included nine gunnery tables and was spread over 6 weeks. I had three sections of eight vehicle guncrews each. The sections were broken down by platoon, each led by the platoon leader. Each section was to spend 1 week living in the field completing gunnery tables I through VI. While one section of vehicle guncrews was completing its week, the others were to spend their time in the WSTC honing their skills.

Table I consisted of a dry run through the range with the vehicle crew evaluators grading each crew on its ability to communicate and operate as a crew. This table also allowed each crew to get a feel for how the range was going to operate. Each crew proceeded down the range and identified targets, made the appropriate calls, and simulated engaging each target.

Tables III and IV were the vehicle guncrews' first



The 53d Quartermaster Company built a sandtable of the range in order to conduct a rehearsal of concept (ROC) drill with the battalion commander, the battalion S–3, and the vehicle crew evaluators. The ROC drill prepared the convoy escort teams to execute the final phase of gunnery operations.

opportunity to actually engage targets with live ammunition. These tables proved to be quite a challenge for most of the crews; they were also the first opportunity for the vehicle commanders to fire. For many, the adjustment from shooting from the ground on a bipod or from a fixed position to engaging targets from an unstabilized position on top of an MRAP was hard to make.

While still in the trainup, we attempted to get MRAPs or up-armored vehicles from which to fire so the Soldiers could become accustomed to the sight picture. I believe that capability would have made a significant difference in the Soldiers' training. During the first week, a number of crews who went through the range ended up on the last two engagements with either not enough engagements to qualify or not enough ammunition to finish the range. After quite a few after-action reviews and discussions, we corrected the problems and the company moved on to table V.

Table V was designed to be a practice for the qualification in table VI. The targets were set up to really challenge the crews, specifically the gunners' ability to acquire and engage moving targets. Table VI was where each of the elements of the crew gunnery came together for the qualification.

During the 3 weeks that the company was in the field executing the operations, it performed very well. Of the required 24 crews, 6 crews qualified as Q1. Of those 6, 3 crews scored better than 800 points and received "Superior" scores; the "Top Gun" crew scored 864.

Executing a Scenario

With the completion of table VI, the company moved into the final phase of gunnery operations, the completion of the sectional phase. Tables VIII and IX are meant to test each convoy escort team's ability to shoot, move, and communicate as a part of a convoy element. In order to accomplish this, we established five sections of four gun trucks each and moved out to the next range. We worked again with the battalion S–3 section and the master gunner to develop scenarios for accomplishing the remaining two tables.

As the company leaders were developing courses of action, each section completed additional training in battle drills and communication procedures in the WSTC's close combat tactical trainer (CCTT). Each section leader also was tasked with establishing standard operating procedures that would be followed during the execution of tables VIII and IX.

In order to complete tables VIII and IX, each section would be graded on its ability to plan, brief, rehearse, and execute the planned scenario. The company built a sand table of the range, set about the task of developing plans for the convoy from the company motor pool to the range, and rehearsed battle drills, such as react to contact, react to improvised explosive devices, and react to ambush.

Before the day of execution, the company came together and held a rehearsal of concept (ROC) drill with the battalion commander, the battalion S–3, and the vehicle crew evaluators to run through the execution of the range and brief the actual execution of tables VIII and IX. During the ROC drill, we ran through the concept of the operation, with the section leaders briefing the responsibilities of the next vehicle.

The scoring for the last two tables was less complicated than the scoring of the initial phase, but it was no less demanding. In order to get a "go," each section was required to not only accurately engage targets but also to effectively communicate and execute the briefed route and the standard operating procedures as a team of four gun trucks.

On the day of execution, the section leaders were given an operation order and then required to develop a plan of action and a warning order and issue that warning order to the crews. At the appointed interval, each section leader used the sandtable to brief the crews and the vehicle crew evaluators on the threats, the standard operating procedures, and the plan of action for each phase of the operation. Then the vehicle commanders gathered their crews and began rehearsals and conducted precombat checks and inspections.

The execution of tables VIII and IX went exceptionally well. Every crew and section performed as rehearsed, and each section completed the tables the first time as a "go."

Finding Areas for Improvement

From the end of June through the end of October, the company remained focused and dedicated to completing the crew certification through sectional gunnery. From the after-action reviews we conducted, we discovered a few areas where we could have performed better and identified areas where we were operationally sound.

The flow of the training followed a very commonsense approach, as outlined by TC 4–11.46. Moving from basic marksmanship through crew-served weapons marksmanship was one of the areas that needed no improvement. The weapons training gave the Soldiers confidence in their ability with their primary weapons and allowed the unit to build the required crew skills for the gunnery operations.

We added the task of pairing the Soldiers serving as gunners with their vehicle commanders through the qualification process on the M240B machinegun. The gunners and vehicle commanders worked together making calls on targets, direction, and distance and completed the qualification process together.

Most notably, the CCTT was a very effective tool that we put to extensive use. The Soldiers in each crew spent approximately a month in the CCTT honing their communication skills and getting to work closely with each other. When the Soldiers were not on a mission or performing other garrison duties, they were in the CCTT. The decision to keep each section in the field during the qualification phase was an area of sustainment. This allowed each crew to focus on the task at hand and complete each table without distraction.

Of the areas that could have been improved, one was the difficulty in acquiring the required MRAPs and M–ATVs for the earlier training events. Since the company was "off ramped," it was not given the same priority as units that were deploying. During the weapons qualification phase, we were unable to get the one or two MRAPs that would have enabled the gunners and vehicle commanders to gain an appreciation for the difference between firing from the ground and the firing from the vehicles' turrets.

This lack of vehicles was also a noticeable problem when the company was attempting to get drivers qualified. We were able to get my Soldiers through the driver's training academy. However, getting them licensed was difficult and had to be conducted with vehicles during the execution of gunnery operations.

Reflecting on the execution of the gunnery operations, the company performed exceptionally well during a very dynamic time. We began training for the gunnery exercise in June, executed a change of command, and went right into gunnery operations. The morale and confidence of the Soldiers and leaders in the company grew with each training event. I saw teamwork, determination, and a competitive drive from Soldiers in the unit when the challenge was issued by the 13th Expeditionary Sustainment Command (ESC) commander to take home the ESC's "Top Gun" award.

I witnessed a crew, after their platoon leader came in with a new "high score," turn around and state with all confidence that they would beat that score. Not only did they beat their platoon leader, they were the eventual trophy winners. I saw the crew's pride that not only had they exceeded the required score, but they had scored better than the previous trophy winners by more than a hundred points. This crew, led by Corporal Edmundo Salas with Specialist Ian Varner as gunner and Specialist Michael Weir as driver, demonstrated an impressive level of teamwork and skill as they scored 864 points with 9 engagements.

As a company, we learned what was required to work as a team and then applied those skills to complete our assigned mission. The company qualified 20 crews for convoy escort team and convoy protection platform operations, took home the "Top Gun" trophy, and eventually set the standard for other sustainment units to follow.

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Commercial Vendor Services and Disbursing Situational Training Exercise

BY CAPTAIN JOHN R. BORMAN

To prepare for its deployment to Afghanistan, a finance detachment of the 13th Expeditionary Sustainment Command developed a training event that simulated the daily business it could expect to conduct in the theater.

An audit of finance operations in support of Operation Enduring Freedom (OEF) and Operation Iraqi Freedom conducted by the Army Audit Agency (AAA) highlighted the importance of quality control when finance units process contracts for payments. The AAA report identified shortcomings throughout the contracting process, from generating the contract through payment and certification.

To address these deficiencies, the leaders of the 13th Financial Management Center (FMC) and the 15th Financial Management Company (FMCO) presented the need to ensure proper training of finance units before their deployment to Brigadier General Terence J. Hildner, the commander of the 13th Expeditionary Sustainment Command from August 2010 until his death in Afghanistan in February 2012. The general understood the Finance Corps leaders' vision for the way ahead and challenged his units to create an effective training plan to meet the demands in theater.

General Hildner thus became the driving force behind the first commercial vendor services (CVS) and disbursing situational training exercise (STX) at Fort Hood, Texas. The exercise was designed to meet the need of finance units for predeployment training.

My unit, B Detachment, 15th FMCO, completed the first CVS/disbursing STX at Fort Hood in December 2011. The purpose of the exercise was to provide realistic training that would mirror the conditions that the detachment would encounter in its upcoming OEF deployment. With the B Detachment "Honey Badgers" preparing for this mission, the STX provided beneficial collective training before the unit's culminating training exercise in March 2012.

Developing a Training Plan

A finance detachment trains and deploys as a unit capable of supporting a battalion-sized element in a theater of operations. The detachment seldom deploys with its parent support unit. Finance units that are preparing to deploy usually attend a multifaceted finance training program, the Diamond Saber exercise in Fort Dix, New Jersey. However, because of adjustments to the deployment cycle, some finance units are unable to attend Diamond Saber.

As the Army places increased emphasis on resource management, the need for individual units to train and certify themselves becomes a priority. Without Diamond Saber, a finance detachment needs an effective training plan to ensure that its personnel are sufficiently trained before its culminating training exercise. The original intent of the CVS/disbursing STX was to develop a plan in which a financial management company, working with support from a financial management center (FMC), would be able to train its own units and certify them before deployment.

The STX would provide the commander with an initial assessment of the unit's technical proficiency before the culminating training exercise. The exercise would do this by providing realistic training that mirrored the conditions the finance detachment would encounter in a deployed environment.

Preparing for the STX

Before the trainup for the CVS/disbursing STX, B Detachment endured an extensive manning overhaul. We wanted to ensure that the personnel receiving the training would be the personnel deploying with the unit. When the dust settled, 18 of the 26 authorized personnel were new to the detachment, and many of them had little practical finance experience. With such a high turnover, we had to ensure that all Soldiers were collectively up to speed on finance operations and operating on the same training plan. In doing so, we faced many challenges. With the holiday season quickly approaching, our training calendar offered little training time.

With assistance from the 13th FMC, our training plan was greatly enhanced. In less than 3 weeks, the 13th FMC established and provided pre-STX consolidated baseline training for all of the individual tasks associated with the exercise; these included training for disbursing agents and managers, certifiers, cashiers, the CVS cell, and information management officers. The support unit automations cell also played a vital role in the preparations by imaging finance computer systems and creating an internal network needed for the exercise.

The focus of the CVS/disbursing STX was to simulate daily business for split operations based on the policies and procedures currently used in the theater. Theater finance operations are continuously changing, so we coordinated with the finance unit we were scheduled to replace for guidance on current operations and procedures in order to provide realistic training.

Site selection for the training exercise was a key aspect of the planning process. As a finance detachment, it would be extremely difficult and unpractical to roll out to a field environment and establish two separate locations. So we coordinated for the use of a large convertible classroom wing of the education center. This area allowed the unit to design two locations with finance offices set up similarly to those in theater.

Executing the Training

During the STX setup phase, the team was divided into two locations and Soldiers fell into their separate roles to set up needed systems and create an environment conducive to daily finance business operations. The Soldiers developed a CVS cell to verify and process commercial contracts.

Each location established a disbursing cell with a vault and the ability to disburse U.S. and foreign currency. The disbursing cells used computer-based software to conduct financial transactions, such as the Deployable Disbursing System, EagleCash card, and the Paper Check Conversion Over-the-Counter system. Each site processed its business on Financial Management Tactical Platform laptops. The laptops operated on an internal network using the Combat Service Support Automated Information Systems Interface processor system and routers.

During the execution phase of the training, each site funded its cashiers daily, ran a full day's worth of business, and balanced its corresponding vault each day at the close of business. Other units in our battalion assisted the training by providing role players who simulated the business of finance customers. The 13th FMC provided observer-controllers who assisted each section and controlled the imbedded missions throughout the exercise. At the end of each day, we submitted our daily reports and conducted our unit after-action reviews.

The overall training event was a success. We were able to gather some valuable lessons learned—lessons we hope other units can apply to their upcoming training exercises. If you take the time and effort to properly plan a training event, you will reap the benefits at execution. Site selection is vital; the focus of our training event was technical experience, so training at a hard site allowed the unit to focus on the technical tasks. Using role players without a finance background and having independent evaluators and trainers added to the benefits of the training. It is important to remain flexible because you never know when you are going to have to adjust your plan. We had an unexpected high turnover of personnel before the event, but we were able to adjust our plan to accomplish the mission.

With the CVS/disbursing STX completed, our next challenge was to maintain our training while preparing for our culminating training exercise in March. We managed to create a training plan that finance detachments can use in the future. Going forward, the focus will remain on creating realistic and challenging training events that follow the most current policies and procedures for conducting financial management support in a deployed environment.



At Forward Operating Base Shank in Afghanistan, a certifier shows his cashiers how to find and correct an error in the daily business.

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Logistics Training at the Joint Readiness Training Center

BY CAPTAIN JULIO J. REYES

Assignment as an "observer, coach, trainer" at the Joint Readiness Training Center provides opportunities to mentor deploying units and receive professional development training.

The Joint Readiness Training Center (JRTC) at Fort Polk, Louisiana, provides the Army with some of the most realistic unit training for deployment and home-station missions. JRTC provides complete coaching and training for squad- to brigade-sized elements of every Army branch and military operational specialty (MOS). Fifty percent of the Army's brigade combat teams that have deployed to Iraq and Afghanistan since 2001 have trained at JRTC. On average, the JRTC Operations Group conducts 10 training and mission rehearsal exercises each year. JRTC has also provided training assistance for combat support hospitals, security force assistance teams, and village stability operations teams working with special operations task forces and group support battalions.

As one of the Army's premier training centers, JRTC needs experienced combat veterans who have faced the logistics challenges of both Iraq and Afghanistan to serve as "observer, coach, trainers" (OCTs). Leaders who serve as OCTs gain experience that benefits them and the units they train at JRTC. The purpose of this article is to inform junior leaders about the benefits and rewards of choosing this kind of assignment.

The Mission of OCTs

The sustainment warfighting function is fully exercised at JRTC as trainers focus on preparing sustainment units for tough logistics missions in Afghanistan and other contingency locations all over the world.

OCTs assigned to Fort Polk help to provide this multiechelon, tough, and realistic training. OCTs have a duty to rotational units and the Army to observe unit performance, control engagements and operations, teach doctrine, coach to improve unit readiness, monitor safety, and conduct professional after-action reviews that enhance a unit's training experience.

The OCT positions range from senior noncommissioned officers (NCOs) who provide feedback to the staff NCOs and platoon sergeants to senior captains and field-grade officers who provide support to primary staff and support operations positions, forward support companies (FSCs), brigade support battalions, battalion and brigade administrative and logistics operations centers (ALOCs), and sustainment brigade units.

The FSC OCT Team

I was selected to serve as an OCT for an infantry battalion FSC. In the Sustainment Division at JRTC, the typical FSC OCT team consists of a logistics captain (area of concentration 90A, multifunctional logistician) who has completed a company command, a sergeant first class with the MOS 92A (automated logistical specialist), and a sergeant first class, MOS 91B (wheeled vehicle mechanic). Augmenting the other logistics functions in an infantry battalion is an ALOC OCT team consisting of another logistics captain, an MOS 42A (human resources specialist) sergeant first class, an MOS 92Y (supply specialist) sergeant first class,



A sustainment observer, coach, trainer" watches a hasty recovery during a tactical convoy operation.



Forward support company Soldiers from the 4th Brigade, 4th Infantry Division, exercise medical rules of engagement and treat a civilian casualty during a situational training exercise lane in the town of "Khaista."

and an MOS 68W (healthcare specialist) sergeant first class.

During each rotation, the OCT teams deploy to the training area to provide real-world training for an infantry battalion of a brigade combat team. The OCTs follow and coach the unit during prerotational training, situational training exercise lanes, and the force-on-force exercise, which is the unit's culminating event.

Other Sustainment Division Support

Other sections within the Sustainment Division offer OCTs for the brigade support battalion's companies, including the brigade support medical company, the distribution company, and the field maintenance company.

The Sustainment Division also has OCT teams for the brigade support operations section, the brigade S–4, and the brigade surgeon. Each sustainment OCT has served multiple deployments within the Army and provides cutting-edge feedback and mentorship to the rotational units. Knowing that our team can assist and quite possibly provide guidance that can save a Soldier's life overseas gives us great satisfaction.

An Opportunity for Growth

I had the opportunity to be assigned to Fort Polk after serving as a company commander and completing the Combined Logistics Captains Career Course. When my branch manager offered the JRTC assignment, my first thoughts were not favorable. However, after discussing the option with my family, I decided to take the assignment because I felt the Army needs quality leaders to serve as OCTs and the assignment would allow me to develop even more as a tactical logistician. The decision to become an OCT has turned out to be one of the best career decisions I have ever made.

Serving as an OCT provides leaders not only the opportunity to support Army units preparing for deployment but also a chance for self professional development. Here is how.

OCTs are responsible for knowing the most current doctrinal practices. This requires professional development, which benefits both JRTC and the individual OCTs.

When not training rotational units, OCTs have the opportunity attend schools. This opportunity lets them return with lessons learned that benefit rotational units at JRTC. Since being assigned here, my fellow OCTs and I have had the opportunity to attend the Operational Contract Support Course, the Mortuary Affairs Officers Course, the Basic and Advanced Airborne Courses, Ranger School, the Battle Staff Noncommissioned Officers Course, Pathfinder, and other quality courses that enhance the leader's operational skill set.

OCTs have the opportunity to travel abroad and train with foreign allied forces. Recently, the Sustainment Division sent trainers to Germany to support the 173d Airborne Brigade Combat Team's full-spectrum operations (FSO) joint exercise, which included an airborne assault exercise into Germany. Other OCTs have had the opportunity to travel to the Canadian Maneuver Training Center near Edmonton, Alberta, to learn about Canadian forces FSO training and joint combat missions.

Since being at JRTC, I have had the opportunity to develop myself as a leader and to gain valuable knowledge that will better prepare me for future assignments as a support operations officer, brigade S–4, or sustainment brigade staff officer.

JRTC is one of the best assignments an officer or NCO can have. The amount of operational and tactical knowledge learned from working with each rotational unit and the ability to build relationships with sustainment leaders throughout the force are invaluable. The training opportunities and chances to travel enhance personal growth of OCTs and may be considered an incentive to seeking an OCT position.

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Rapidly Returning the Global Response Force

BY LIEUTENANT COLONEL MATTHEW SHATZKIN

The 407th Brigade Support Battalion competently redeployed the 2d Brigade, 82d Airborne Division, from Operation Unified Response in Haiti by planning, rehearsing, and communicating well with all of the units involved in the mission.

Developing redeployment competence is an interesting topic. Even though it is part of the mission-essential task list, it usually ranks very low on the priority list. Discussing redeployment operations in the midst of executing full-spectrum operations seems potentially counterproductive; it may distract a unit from completing a successful mission. Nonetheless, for logisticians, even if developing redeployment competence is not a priority, executing a redeployment competently is.

Redeployment Operations

Redeployment operations resemble reception, staging, onward movement, and integration; although both are combat operations, their logistics implications are highly significant. One could easily make the case that redeployment operations are a reverse supply chain of sorts.

Knowing that a lack of redeployment competence can potentially hinder the rapid rebuilding of combat power, it is worthwhile to share lessons learned concerning tactical redeployment, particularly under austere and immature conditions. Like deploying, redeploying under such conditions usually presents many challenges that tactical support units must solve.

Since the advent of modularity in 2006, the brigade support battalion (BSB) has possessed great capability to facilitate redeployment operations for the brigade combat team (BCT). This capability lengthens the BCT's operational agility, and units can stay in the fight longer.

This article outlines the experience of my battalion, the 407th BSB, as it contributed to the redeployment of the 2d BCT, 82d Airborne Division, from Operation Unified Response in Haiti in February and March 2010. This was a particularly significant redeployment operation since the 2d BCT would resume a global response force mission shortly after returning to Fort Bragg, North Carolina. During the redeployment, the 1st Battalion, 325th Airborne Infantry Regiment (1–325 AIR), received a short notice deployment order for a 4-month stop-gap mission in Afghanistan. This follow-on deployment highlighted the need to redeploy with precision.

Early Redeployments

The 407th BSB began redeployment planning in the first week of February, even without a redeployment date. We began redeploying the 1st Squadron, 73d Cavalry Regiment, in early March and finished redeploying the majority of the 2d BCT, including our battalion, on 26 March. Around 20 March, we learned that we would resume the global response force mission at Fort Bragg on 1 April.

By approaching the BCT's redeployment as a combat operation, we knew that mission command would be essential. We also inherently knew that although we could rent our own buses, host-nation flatbeds, and other means of transportation, we would have to interact closely with the Joint Staff, the U.S. Southern Command, and the U.S. Transportation Command. We would also require Joint Planning and Execution Systems visibility on inbound flights and ships.

Therefore, when conducting initial planning with the joint task force (JTF), we suggested the creation of a deployment-redeployment control center (DRCC). When the JTF and the 3d Expeditionary Sustainment Command (ESC) adopted this concept, we embedded in the DRCC our brigade mobility officer and one of our movement noncommissioned officers (NCOs) as a liaison team. During the first few battalion redeployments, we placed our battalion S–3 and two additional NCOs in the DRCC to maintain situational awareness 24 hours a day.

We found the key to redeployment success was to meet formally with the supported unit well before the potential chaos of redeployment. During this meeting, we would walk through a detailed, lockstep framework of our redeployment support from start to finish and scrutinize any issues. We dubbed this framework the "r-minus" schedule.



The deputy commanding general of Joint Task Force–Haiti stops to talk with several Soldiers from A Company, 407th Brigade Support Battalion, 82d Airborne Division, while they wait at an airfield to return to Fort Bragg, North Carolina. *(Photo by Private Samantha D. Hall, 11th Public Affairs Detachment)*

Redeployment Tactical Operations Center

Borrowing a tried and true concept from redeploying the 82d Airborne Division from Iraq in April 2004, we built a redeployment tactical operations center (RTOC), which was a central operations center where redeployment operators throughout the BCT could share information, integrate resources, and synchronize redeployment. After defining RTOC information requirements, we manned the RTOC at night with a battle NCO and during the day with a lieutenant, an NCO, and an enlisted Soldier. A Transportation captain who was headed for Special Forces led the overall operation, constantly synchronizing daily operations between the DRCC and the RTOC.

We built the RTOC knowing our main body would need to redeploy our tactical gear at some point. We purposefully put the RTOC inside a general purpose medium tent that we could leave in Haiti. A hardworking crew of NCOs and Soldiers built tables, chairs, battleboards, and a floor from locally purchased plywood and 2x4s.

We did need to use some of our organizational equipment, such as our Command Post Node and accompanying "category 5" cable for digital communications, laptops we could carry, a 10,000-watt generator for power, a light set, and several printers. We left behind two high-mobility multipurpose wheeled vehicles with trailers and one shipping container to use for redeploying this equipment by military aircraft.

By the same thought process, trying to increase our agility as much as possible, we packed our tactical voice communications equipment and received 26 land mobile radios. Although they were a nonsecure capability, these radios easily communicated with all of our nodes as well as the DRCC and the BCT tactical operations center, allowing us to track and report all aspects of the redeployment.

We also employed the "battlebox," a shared email address assigned to our operations centers that battle captains and NCOs monitored 24 hours a day. The battlebox ensured that a running log of emails was in one repository.

Conquer the Container

During our mission analysis and concept development, we derived three lines of operation: moving containers, moving vehicles to the seaport, and moving personnel directly to the airport. Initially, we assessed the container line of operation to be the most difficult, although we encountered the most challenges providing redeployment life support at the life support area (LSA).

To counter our anticipated difficulty with containers, we launched a "Conquer the Container" campaign. We sent a mobile training team (MTT) to each base camp to teach leaders a 1-night block of instruction on container friction points and problem areas. The MTT reviewed standards on shipping labels, radio frequency identification tags, and blocking and bracing for MILVANs [military-owned demountable containers]. The instruction also included hazardous material and ammunition packaging and handling training.

Ammunition Support

Ammunition was a concern because of our requirement to redeploy it to Fort Bragg. Because we required military aircraft for transportation and we were a low transportation priority, we were worried about ammunition on the ground causing delays in our redeployment. We sent our first air shipment of brigade ammunition back to Fort Bragg on 17 March. On a few occasions, the military aircraft assigned to our movement were reassigned to higher priority missions, but ammunition redeployment did not slow our return to Fort Bragg.

Unit ammunition turn-in went smoothly. After communicating standards as part of the Conquer the Container MTT, our ammunition team moved to operating bases early in the process to assist in packaging and account-

ability. A deployed quality assurance specialist (ammunition surveillance) team was a great help.

Surface Redeployment

While we were expecting rigid unit line number discipline when processing vehicles for surface movement, we were excited to learn that we could load ships without being confined by unit line number rules. What evolved was a type of surface channel that ran from Port au Prince, Haiti, to Jacksonville, Florida, then onward to Fort Bragg via line haul. We were not required to provide supercargoes (manpower required to travel on the vessel and check tiedowns en route), probably because of the trip's short duration. The travel time was 14 days from port to fort, and movement out of the seaport marshalling yard was about 1 to 2 days based on the high priority granted by the DRCC.

For most vessels, we provided a 20-driver port support activity to drive all vehicles and equipment onto ships. We also maintained several nodes at the shipyard manned by mechanics from our B Company and headed by our shop officer. The nodes included a team to track equipment as it passed through the customs wash rack, a team to account for equipment as it left the final marshalling yard, and a team to account for equipment as it was loaded onto the ship. We first plugged into the rapid port-opening element from Jacksonville and also the 10th Transportation Battalion, which was running the port.

The Wash Rack

During initial planning, we thought we would be able to avoid washing vehicles for customs. Unfortunately, this did not turn out to be the case. Although we began with a planning estimate from the Military Surface Deployment and Distribution Command of 10 vehicles per hour flowing through 3 points operated by contracted Haitians with 3.96-gallons-per-minute pressure washers, our first redeploying unit, the 1st Squadron, 73d Cavalry Regiment (the Gray Falcons), required almost 3.5 hours for a serial of 10 vehicles.

While the Gray Falcons had a small fleet (38 pieces of equipment), we knew this rate of throughput would not be able to support our larger battalions. The Red Falcons (the 1–325th AIR), the next battalion in the redeployment order of movement, possessed nearly three times as many vehicles and trailers. Therefore, we developed a mobile carwash, an asset that we could deploy to any forward operating base early in the predeployment process for precleaning.

To build this carwash capability, we first considered flying our sineators [chemical decontamination equipment] from Fort Bragg for the mission. Then A Company's "water dogs" built the carwash using a load handling system flatbed, two forward area water point supply system blivets, a 600-gallon plastic water tank, and two locally purchased 3.96-gallon-per-minute pressure washers. The carwash team prewashed more than 205 vehicles across the BCT, reducing wash rack throughput time from 3.5 hours per serial to as low as 1 hour per serial.

Strategic Redeployment by Air

To redeploy by air, we were allotted a low transportation priority for passengers by the U.S. Transportation Command and a low priority for our military cargo, including ammunition, sensitive items containers, and the final Command Post Node and power generation equipment needed for maintaining communications.

Early in the redeployment process, we obtained a Strategic Mobility System account for the RTOC. Having this capability enabled the RTOC battle captain to track flights and maintain situational awareness. Our actual commercial flights arrived 1 or 2 days past the requested load date, and our flights for military cargo arrived an average of 3 days past the requested load date.

Customs

Redeploying from foreign soil inevitably requires a host of customs inspections. Returning from Haiti was certainly no different. During our mission analysis, we identified that customs inspections would ultimately determine our redeployment tempo. U.S. customs agents flew in and trained theater military police on customs standards, and we began inspections in three areas: containers, equipment, and personnel.

Container and equipment customs. We first had to determine suitable locations to pack containers. While most units deployed their organic containers (with the exception of the Gray Falcons, who did not have a chance to pack them), units still required 20-foot MILVANs to redeploy items that were palletized for deployment or were purchased in country. We conducted site surveys to determine which operating bases could support 20-foot flatbeds and rough-terrain cargo handlers.

Because of transportation constraints, the Gray Falcons loaded their containers at the airfield and the Black Falcons (the 2d Battalion, 319th Field Artillery Regiment) loaded their containers at their forward support company's operating base—a soccer and sports field. All other units packed their containers at their own operating bases.

In all cases, we transported Air Force 463L cargo pallets to the packing location several days ahead of time. Units used their wreckers to reposition the pallets next to their MILVANs and other containers to provide a tidy surface to clean items before packing them.

Equipment had to be clean, so units had to brush tents, ensure nets were free of dirt and seeds, and drain generators. We used contact trucks with airhoses to blow out dirt and seeds, brooms to sweep off tents, and cleaning wipes to clean tents and other equipment. Customs officials had to inspect the insides of containerized kitchens, wreckers, contact trucks, and maintenance shelters for contraband as well as cleanliness. Cleaning containers was relatively easy—units simply had to sweep them out. Local nationals washed the outsides of the containers in the same way that vehicles were washed. The wash rack maintained a separate lane for containers.

To maintain accountability and facilitate and track the process, our maintenance company supervised the uploading of containers onto trucks from the 10th Transportation Battalion and escorted the containers to the seaport of embarkation. The only containers we did not seal were sensitive items the BCT needed to redeploy by air.

Four battalions (including our own) had three ISU 90 containers to redeploy by air. Our arrival/departure airfield control group facilitated moving these containers to the east end of the airfield 12 hours before departure for a final spray down by Air Force personnel and then an inspection by the Air Force and customs agents. Unit trail parties guarded these containers in the LSA prior to movement.

We found it best to label containers after they were washed since local nationals would sometimes mistakenly spray labels off. We also learned to keep all customs documents to avoid having to redo the inspection.

Personnel customs. We wanted to inspect Soldiers' individual baggage away from the passenger terminal to avoid creating a chokepoint at the airport of debarkation, which was built to process only 10 troops at a time. Working with the customs agents, we performed most baggage inspections at the unit's forward operating base less than 24 hours before their flight time.

Eventually, we started sending inspectors to a unit's LSA to perform customs inspections on top of Soldiers' cots. For our final flights, we facilitated these inspections in open tents that we erected approximately 50 meters from the air port of embarkation (APOE). Customs required about 2.5 hours to complete baggage inspections for 200 Soldiers.

Soldiers flying home had to stand on scales to record their weight and process their assault packs and carry-on bags through customs. Since most passenger flights were contracted commercial lift, many of the familiar commercial flight rules applied, such as no knives or liquids allowed. We had to deliver Soldiers to the APOE 5 hours prior to their departure time; the APOE required an average of 1.5 hours to process 200 Soldiers through customs and manifesting procedures.

The military police serving as customs agents were eager to help us follow correct procedures. So, for our third battalion redeployment rotation, we coordinated for courtesy customs training from them. They reviewed standards for containers, personnel, and equipment traveling by surface vessel. This training was extremely helpful and helped decrease our throughput time even further.

Life Support

Our original concept was to operate a "transient" LSA where we could billet unit troops before they redeployed by air. LSA Gold's close proximity to the 24th Air Expeditionary Group's terminal on the west end of the airfield parking ramp, colocated with the RTOC, was the logical location to house these transient troops. However, limited bed space and facilities held our transient capacity to 400 troops in addition to the camp's permanent party population of 400.

> WE FOUND THE KEY TO REDEPLOYMENT SUCCESS WAS TO MEET FORMALLY WITH THE SUPPORTED UNIT WELL BEFORE THE POTENTIAL CHAOS OF REDEPLOYMENT.

Based on this limited capacity, we initially offered transient billeting primarily to unit vehicle drivers; it did not make sense to return unit drivers to their operating bases after washing unit equipment. However, during our planning, we failed to fully identify the units' requirements to clear forward operating bases.

To clear its base, each unit had to disassemble, pack, and ship its general purpose medium tents and turn in its showers, excess water, rations, barrier materials, medical waste, and hazardous materials. In most cases, this closeout process took more than a day, and no unit wanted to wait until the last minute with customs and a flight ahead of them.

So, although we had underestimated the requirement, we still had to support it. We erected additional tents and brought more transients to the LSA than we had originally intended. Doing so required some adjustments since some transients stayed in the LSA for up to 4 days waiting for flights to be assigned and aircraft to arrive. To stretch the LSA's capacity, we established separate shower hours for permanent party and transients and transported hot meals across the camp to the transient location to avoid long feeding lines.

It took time for LSA Gold residents to adjust to these changes. Our first "adjusted" day looked the same as it did before—all personnel were in the shower and chow lines at the same time. We positioned NCOs at these service points to ensure that everyone honored the arrangement and could have the best service. Our camp groaned during its maximum capacity days when the total population neared 800 Soldiers, but the shower team miraculously kept the showers running and the cooks kept on cooking.

Learning and Improving

After the Red Falcons' redeployment, we executed an "in stride" after-action review with the 3d ESC. To increase mission command, we requested our own buses

for passenger transportation. The 3d ESC granted this request, maintained the contract, and allowed us to use the buses when we needed them. The 377th Theater Support Command (TSC) attended the after-action review since it subsequently conducted a relief in place/transfer of authority with the 3d ESC.

Organizational Redeployment

Around 11 March, we received an opportunity to redeploy C Company early since its mission was complete. We called C Company "Force Package 0."

Around 20 March, the 407th BSB received redeployment orders and the 2d BCT received an order to reassume the global response force mission on 1 April. Our initial concern was general and redeployment support to the 2d Battalion, 325th AIR (2–325 AIR), which would be the last battalion to redeploy. After some mission analysis and coordination through the JTF and the 377th TSC, we transferred all general support functions to the 530th Combat Sustainment Support Battalion (CSSB).

Simultaneously, we divided our own battalion into three force packages: Force Package 1, largely consisting of A Company; Force Package 2, consisting of equal parts B Company, A Company, and the headquarters and headquarters company; and Force Package 3 (the trail party), consisting of 20 people.

Force Package 1's mission was to transfer stocks and supply point operations to the 530th CSSB, Force Package 2's mission was to restructure and drawdown LSA Gold, and Force Package 3 would continue to coordinate a higher echelon of support for Task Force White Falcon, which included the 2–325 AIR and a small element from the 407th BSB and the brigade headquarters. Force Package 3 would also facilitate White Falcon's redeployment and close down LSA operations. We frontloaded capability in Force Package 1 but preserved some manpower in Force Package 2 in case we had to fully tear down LSA Gold.

Transferring support to the 530th CSSB went very well and was seamless to Task Force White Falcon. Essentially, the White Falcon forward support company changed its pickup location; instead of picking up its supplies from the 407th BSB in LSA Gold, the company picked up supplies from LSA Hope, 2.5 kilometers to the east. To ensure success even further, we emplaced a liaison team in the 530th CSSB headquarters.

After this successful transfer, we isolated Force Package 1 and had it focus solely on redeployment. We manned the RTOC with a unit representative, like any other battalion would, conducted an initial coordination meeting, and got Force Package 1 moving on its redeployment timeline. Force Package 1 quickly shut down its various nodes—the tactical water purification system and bulk water supply point, the bottled water and meals ready-to-eat supply point, the fuel point, the class I (subsistence) point, and the supply support activity. The only part of A Company's footprint that remained was the brigade ammunition holding area, which was ready to clear the final pieces of battalion ammunition and the remainder of White Falcon ammunition.

We finished Force Package 1's equipment preparations early enough to restructure the camp. The most important step was to clean and containerize the general purpose medium tents that had come from Fort Bragg. With rain reducing our teardown time, the Soldiers from Force Packages 1 and 2 tore down 20 tents and constructed 20 tents that would stay behind in Haiti. To assist with the teardown effort, the battalion hired local Haitian workers. This restructuring effort not only successfully reduced LSA Gold and properly returned the tents to their point of origin, it also set conditions for the 65th Military Police Company to move into LSA Gold as permanent party and established an enduring redeployment node for the theater.

A BSB must be ready to execute a redeployment concept of support. But redeployment is rarely trained. Particularly in the case of the 2d BCT, which had to redeploy with precision to reassume the global response force mission (the 1–325 AIR deployed to Operation Enduring Freedom 3 weeks after its return from Operation Unified Response), redeployment is a complex operation. Approaching it in any other manner will inevitably result in failure. Organizations that apply the fundamentals of planning, rehearsals, and execution, identify the limiting factors, and preserve clear mission command will enjoy a smooth return.

To plan for the true complexity of redeploying in an immature theater, the BSB future operations section should begin planning redeployment within the early days of arrival. The BSB in a global response force should retain a concept of operations for redeployment support since it is very likely that the global response force BCT will be the first to redeploy from such a contingency operation. For all support units, redeployment support operations remain a worthwhile topic of study toward building requisite logistics and supply chain competence throughout our profession.

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Redefining the Future of Tactical Equipment Maintenance Facilities

by Nadia Abou-El-Seoud
and Lieutenant Colonel Ravin Howell, USA (Ret.)

The Army is developing new multifunctional maintenance complexes to meet the demands of the 21st century.

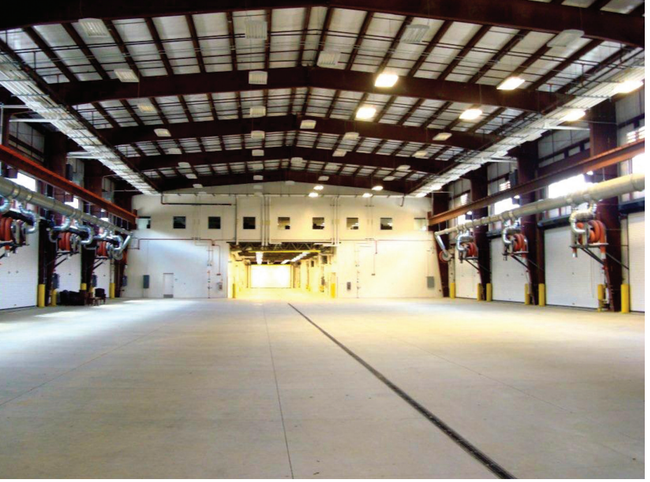


Exterior view of a medium tactical equipment maintenance facility at Fort Richardson, Alaska.

A pressing and rigorous task has been given to Army logisticians: Reengineer Army maintenance and repair structures to support 21st century missions. In the past, Army policies focused on facilities that supported specific functions. To avoid future logistics gaps, the Army has fundamentally redesigned and amplified the most modern and flexible facility design used today, the Tactical Equipment Maintenance Facility (TEMF). This redesign uses functional applications adopted from civilian environments.

Maximizing the features and capabilities of future facility designs to accommodate fundamental changes in equipment maintenance and repair relies heavily on tapping the imaginations of facility operators. Logisticians and engineers throughout the Army have expanded the horizon of possibilities and adopted concepts and innovations that better support the fundamental purpose of the TEMF: maintenance and repair throughput. The resulting design has exceeded the expectations of the Army Staff functional proponent, the Office of the Deputy Chief of Staff, G–4, and the designer for achieving increased throughput capacity.

While it is only one of many of the TEMF features that incorporate current innovations and can be adapted



Interior view of a large tactical equipment maintenance facility at Fort Eustis, Virginia.

to meet future requirements, the increased throughput capacity by itself mitigates the effects of budget cuts on efforts to modernize aging TEMF legacy facilities. As a result, even in times of enormous pressure to find ways to reduce expenses, both the immediate past and the current Deputy Chief of Staff, G–4, are committed to continuing to provide new TEMFs that comply with the new TEMF Army Standard to meet the 21st century needs of units worldwide.

Supporting Army Maintenance Transformation

The transition from 20th century methodologies to evolving 21st century practices relies on completing the Army's transformation to a two-level maintenance system comprising successful field- and sustainment-level operations.

The fusion of facility design and field maintenance focuses on providing preventive maintenance services and performing timely repairs, resulting in the rapid servicing of equipment and weapon systems and the quick return of items to Soldiers in an operational status. The Army has modified its logistics resources and maintenance policies to conform to the futuristic objectives for field maintenance and repairs.

Based on improvements in maintenance operations, development of the TEMF is progressing toward two goals: to support Army transformation and to provide flexibility to incorporate new policies and advanced technology to assist the warfighter. TEMFs accommodate a variety of facility missions. Since maintenance Soldiers spend most of their duty day in the motor pool, the TEMF complex is no longer a single facility focused on performing a specific function but a multifunctional complex.

In addition to performing the primary functions of inspecting, maintaining, servicing, or repairing equipment, the TEMF also supports secondary functions of preparing and staging equipment for deployment, conducting mission planning and rehearsals, and enabling embedded and distributed training. The TEMF design supports a brigade-centric readiness posture while maintaining and sustaining the equipment assigned to various units. It is therefore essential that maintenance organizations supporting units build on the modernization of equipment, advances in reliability, maintainability, and technology, and the design and redesign of equipment to reduce the logistics footprint. From these factors, the new TEMF standard design has emerged.

The Combat Readiness Support Team, Headquarters, Army Corps of Engineers, in partnership with the Office of the Deputy Chief of Staff, G–4, continues to serve as a key participant in validating Army missions, tasks, and functions leading to the review and development of current and future standards for TEMF complexes worldwide. The new TEMF design has proven to be the Army's most innovative to date and provides the physical conditions to perform the most complex set of missions in a single facility type in the Army.

The process used to derive the new TEMF Army Standard and its companion Army Standard Design is used by the Army Staff as the template for all mission-based facility standardization. A composition of functional, operational, and spatial relationships, the new TEMF's significance to the Army continues to grow as a crucial focal point for mission success. Therefore, new developments and reviews continue as TEMFs remain responsible for returning serviceable equipment back to the warfighter.

Designing for TOE and TDA Units

The Combat Readiness Support Team and the Army Corps of Engineers TEMF Center of Standardization determined the key functions and relationships between the table of organization and equipment (TOE) and table of distribution and allowances (TDA) units using TEMFs and the relationship between maintenance operations and TEMF design and construction. This resulted in enhanced use of manpower and space and reduced costs.

For the first time in known Army history, the doctrinally-based, requirements-oriented futuristic design of a facility has outpaced the understanding of the practitioners who use it. Fundamental change brought about by Army transformation has created a new gap that is now being identified in several 21st century facility standards and designs. Transformation has created a new challenge: how to use the advanced concepts embedded in 21st century facility designs.

The Army Facility Design Team, cochaired by the Office of the Deputy Chief of Staff, G–4, Field Maintenance Division and the Office of the Assistant Chief of Staff for Installation Management, acts as the facilitator and adjudicator of TEMF redesign. Its assessments and conclusions are projected to affect Department of the Army Pamphlet 750–1, Commanders' Maintenance Handbook, by adding information on how to use TEMFs and on the intended purpose of vital adjustments to TEMF standards and designs of the past.



Soldiers at work in a medium brigade support battalion TEMF at Fort Bliss, Texas.

On and Off the Battlefield

TOEs depict the Army's wartime mission, organizational capabilities, essential equipment, and personnel for deployment readiness. In order for a unit to maintain wartime capabilities, maintenance and repair functions are required for TEMF facilities. The designs of TEMF facilities highlight the importance of operational readiness, achieved by the redesign and rethinking of the TEMF standard design to promote functionality.

New TEMF facilities are larger and include additional resources for units and increased space for secure and nonsensitive secure storage areas for the vehicles, mounted weapons, radios, and navigation equipment used in convoy protection. The alteration of TEMF designs generates functional spaces for maintenance, repair, service, and inspection of equipment.

While TOE units have provided the requirements for deployable units, TDA organizations provide authorizations for nondeployable units. TDAs stipulate the requirements and authorizations for personnel, equipment, and organizational structures when an appropriate TOE is not available or applicable. TDA facilities are generally not grouped into TEMF standard sizes. However, they share common standardized criteria (standard design building blocks), attributes, and general layouts with TOE facilities and continue to form the infrastructure of the Army.

TDA units are adding roles and responsibilities and facility features to support activities like "maintenance supply expeditors" and reset that are embedded within the brigade support battalion's TEMF. TOE and TDA units are serving as the fundamental building blocks for TEMF facilities. Advances in repair work areas, maintenance shops, inspection areas, administrative core areas, and site functional areas are supporting the development of TEMF criteria and standard designs to serve the warfighter faster and more efficiently.

Specialized capacities and capabilities are provided in the brigade support battalion to support both return to service and return to supply in a single set of standardized design features while still optimizing throughput. Simultaneously, life-cycle sustainment costs are reduced as the Army modernizes and replaces legacy facilities. For example, the overhead lift in all aviation and ground maintenance facilities has been standardized, which reduces the annual cost of certifying overhead-lift capacity by reducing the number of lift variations on an installation.

The obligation to uphold the TEMF Army Standard requires the TEMF Facility Design Team and the center of standardization to continually advance and refine the TEMF complex over time so it remains predictive and responsive to future demands. As such, features and adaptability to enable the Department of Defense condition-based maintenance (CBM) initiative are already embedded in the new TEMF facility design. For example, CBM prognostic and diagnostic enablers will employ both passive and active sensors on vehicle dynamic components. The TEMF has already been designed to enable the capture and transmission of sensor data, either remotely or hard-wired to computers, for both analyses and redistribution to Army maintenance and repair centers of excellence.

To uphold the TEMF Army standards and press forward with the task placed on the Army to reform 20th century practices requires a more efficient and rapid return of equipment. TEMFs remain the Army's most innovative design to be implemented worldwide. Efforts to support 21st century mission execution are underway within the Army. With great emphasis placed on field and sustainment maintenance operations, the Army is upholding its promise to remain the strongest force on land.

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SPECTRUM

A Case for Change in the Management of Class V

BY MAJOR GENERAL GUSTAVE F. PERNA AND STEPHEN D. ABNEY

The Army's ammunition[1] organizations have performed effectively during more than 10 years of war. In the austere operational environment of Afghanistan—a landlocked, mountainous, tribal land surrounded by enemies—those ammunition organizations ensured that Soldiers had the ammunition they needed while also providing ammunition to the war in Iraq. The Army's ammunition organizations developed and fielded new munitions, such as Excalibur, the advanced precision mortar initiative, and the enhanced performance round,[2] and developed procedures to supply our allies with Soviet-style munitions.[3]

Since effectiveness was our metric, the Army's ammunition organizations were not managed for maximum efficiency during this time. This paper describes the history of program management, the current situation with ammunition support organizations, and a possible way ahead for the leaner fiscal environment we face.

The Beginnings of Program Management

Secretary of Defense Robert McNamara brought the corporate concept of program management to the Department of Defense (DOD) in late 1961. At first, Army program managers were assigned to the Army Materiel Command (AMC).[4] In 1986, National Security Decision Directive (NSDD) 219 mandated the establishment of service acquisition executives charged with designating program executive offices (PEOs) that would be responsible for the oversight of acquisition programs. In essence, this change minimized the level of supervision between the program managers and their respective acquisition executives.

Later that year, the Goldwater-Nichols Act[5] codified NSDD 219 in statute, resulting in the realignment of acquisition programs under the newly formed PEOs, with Army PEOs reporting to the Assistant Secretary of the Army for Acquisition, Logistics and Technology (ASA[ALT]) in the role of Army Acquisition Executive.

More recently, Congress created the role of product support manager "to maximize value to the DOD by providing the best possible product support outcomes at the lowest operations and support cost."[6] This position, which applies to each ACAT I/II weapon system,[7] introduces additional opportunities for duplication of effort, cumbersome matrix support, and inefficiencies if it is not closely monitored.

[1] The term "ammunition" is used throughout this paper synonymously with class V, which includes items such as flares that are not considered ammunition by the general public. "Munitions" may be a better comprehensive term when a distinction is required between ammunition and other class V items.

[2] Excalibur is the XM982 extended range, precision-guided 155-millimeter artillery round. The advanced precision mortar initiative (APMI) is a 120-millimeter mortar that uses a global positioning system to increase precision. The M558A1 enhanced performance round (EPR) is a 5.56-millimeter bullet that provides better results against both hard and soft targets than its predecessor and that contains no lead, a long-term benefit to the environment, particularly at Army training ranges.

[3] Because the Kalashnikov AK–47, a rifle common in Afghanistan, does not use U.S. or North Atlantic Treaty Organization (NATO) standard bullets, the United States had to develop a way to rearm its allies with Soviet-style ammunition. Similarly, the United States provided security assistance with equipment that was not U.S. or NATO standard.

[4] After the Army Materiel Command's establishment in 1962, its commanding general, General Frank S. Besson, Jr., requested approval for 30 projects and charters in August 1962.

[5] Goldwater-Nichols DOD Reorganization Act of 1986, Public Law 99–433.

[6] Section 805, Fiscal Year (FY) 2010 National Defense Authorization Act, Public Law 111–84.

[7] Acquisition Category (ACAT) I systems are those that have a research, development, test, and evaluation (RDT&E) cost of more than $365 million or a procurement cost of more than $2.19 billion (using FY 2000 dollars). ACAT II systems are smaller major systems with the threshold amount of $140 million for RDT&E or $660 million in procurement costs. Below that are ACAT III less-than-major systems. See 10 U.S. Code 2430, Major defense acquisition program defined.

Life Cycle Management of Class VII Today

The Army manages class VII (major end items) programs through life cycle management commands (LCMCs). The first three LCMCs were the Aviation and Missile LCMC at Redstone Arsenal, Alabama, the Communications-Electronics Command (CECOM) LCMC at Aberdeen Proving Ground, Maryland, and the TACOM LCMC[8] at Warren, Michigan. These three commands manage the Army's class VII from a wholesale perspective.

Each LCMC has three operational components: technology, acquisition, and logistics. The technology function comes from one or more research, development, and engineering centers commanded by the Army Research, Development and Engineering Command (RDECOM) and aligned with the LCMC. The acquisition function comes from one or more PEOs that by law report to the ASA(ALT). All logistics functions remain with the AMC major subordinate command.

A rationale for the LCMCs is that sustainment costs constitute an estimated 50 percent[9] to 70 percent[10] of the life-cycle cost of an end item. Class IX (repair parts) and related maintenance are cost drivers of this sustainment tail, which is common to the Aviation and Missile, CECOM, and TACOM LCMC products. Having a program manager involved in the program's life cycle of system upgrades, service-life extension programs, and other modifications requiring acquisition management expertise makes sense for class VII and is codified in Defense guidance.[11]

This Defense guidance does not dictate the Army's current management structure. The Navy and Air Force take different approaches than the Army to accomplish life-cycle management. Simply put, the law does not tell us how to manage the life cycle.

Current Sustainment of Ammunition

The management structure for ammunition parallels that of the other Army LCMCs. The Joint Munitions and Lethality (JM&L) LCMC is more of a coordinating body than an actual command. It integrates the research and development efforts of the Armaments Research, Development and Engineering Center (ARDEC), which reports to RDECOM; the acquisition efforts of PEO Ammunition, which reports to the ASA(ALT); and the logistics efforts of the Joint Munitions Command (JMC), a major subordinate command of AMC. The JMC commander is also the JM&L LCMC commander in this construct.[12]

JMC is responsible for the sustainment of conventional ammunition[13] for DOD in the Army's role as the single manager for conventional ammunition. JMC does this at eight storage locations in the continental United States (CONUS).[14]

Unique Characteristics of Ammunition

Although the management structure for class V (ammunition) parallels the management structure for class VII, the differences inherent in class V make that structure less than optimal. It is important to review the differences in determining the best management structure for ammunition.

Class V has unique characteristics—one of the rationales for having ammunition as its own class of supply. Class V items have hazardous materials constraints similar to those of class VIII (medical materiel) items, while classes VII and IX generally do not. Class V items have shelf-life limitations, similar to those of class I (subsistence) items, which are not major concerns for the other LCMCs that focus on classes VII and IX.

Another major difference between class V and the classes VII or IX items managed by the other LCMCs is that class V sustainment costs are not as dependent on operating tempo (OPTEMPO). When OPTEMPO is high, helicopters and tanks require more frequent maintenance and use more spare parts, so sustainment costs *per item* rise with increased usage rates.

Unlike the situation with class VII end items, spare parts and maintenance are not major cost drivers for class V. Bullets do not require spare parts, and while bombs require some maintenance (such as repainting them after years in storage), bomb maintenance is minor compared to the maintenance of tanks and helicopters.

The sustainment of ammunition consists of storage, care of stocks in storage (COSIS), surveillance, distribution, and demilitarization. Surveillance consists of examining ammunition items for degradation (such as rust or corrosion), sampling the propellants that degrade over time, and performing other tests on the ammunition to ensure safety and usability. Demilitarization means deliberately rendering an item unusable for its intended military purpose. The Army demilitarizes ammunition that is unsafe, obsolete, or in excess to the needs of DOD.

While helicopters measure their usage in flying hours, a bullet, bomb, or grenade is used once. Thus, class V sustainment costs per item do not increase with increased OPTEM-

[8] Before it was designated an LCMC, TACOM stood for Tank-Automotive and Armaments Command.

[9] "Impact of ammunition performance on weapon reliability and life cycle cost," Reliability and Maintainability Symposium (RAMS), 2011 Proceedings, Lake Buena Vista, Florida, 24 to 27 January 2011.

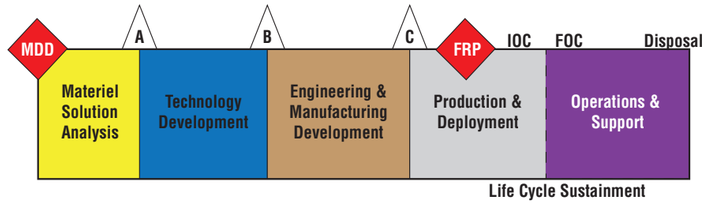
[10] Daniel W. Miles, Program Life Cycle Cost Driver Model, June 2008, http://government.gpstrategies.com/common/pdf/govt/cdProgramLifeCycle.pdf.

[11] DOD Directive 5000.01, The Defense Acquisition System, dated 12 May 2003, designates program managers as the individuals "with responsibility for and authority to accomplish program objectives for development, production and sustainment to meet the user's operational needs."

[12] Defense Acquisition Guidebook, DOD Instruction 5000.02, Enclosure 10, states, "The PEO shall be dedicated to executive management and shall not have other command responsibilities unless waived by the USD(AT&L) [Under Secretary of Defense for Acquisition, Technology, and Logistics]."

[13] Here, conventional means that it is not nuclear or chemical.

[14] The eight are Anniston Munitions Center, Blue Grass Army Depot, Crane Army Ammunition Activity, Hawthorne Army Depot, Letterkenny Munitions Center, McAlester Army Ammunition Plant, Pine Bluff Arsenal, and Tooele Army Depot.



PO. Overall class V costs increase because more items are produced and shipped; however, sustainment cost per item may actually decrease during a conflict since ammunition is stored for shorter periods, requiring less COSIS and surveillance.

The Development of Army Materiel

Before we move to recommendations on how to change ammunition management, we should review how Army materiel is developed. The chart above shows the flow of a new product through the acquisition milestones.

The entry point into the acquisition process is the materiel development decision. The three milestones are milestone A, which approves entry into technology development; milestone B, which approves entry into engineering and manufacturing development; and milestone C which approves entry into the production and development phase. After milestone C, the item begins low-rate initial production, followed by full-rate production that provides first an initial operational capability and then full operational capability.[15]

One way that ammunition differs from the other LCMC products today is that the disposal management function for ammunition resides at PEO Ammunition. For the products of the other LCMCs, Defense Logistics Agency (DLA) Disposal Services carries out demilitarization and disposal.

Issues in Ammunition Management

Four areas in the management of class V currently experience redundancies and inefficiencies and require changes to become more efficient, effective, and agile.

Industrial base. Currently, JMC and the Program Manager for Joint Services in PEO Ammunition have redundancies in industrial base management, and the funding stream exacerbates this problem. PEO Ammunition receives production base support (PBS) dollars as part of its procurement funding. PBS funds pay for facilities and equipment at JMC's Government-owned, contractor-operated (GOCO) facilities. Meanwhile, JMC's Government-owned, Government-operated (GOGO) facilities receive funds for facilities and equipment through the Capital Investment Program or MCA [military construction, Army] accounts. In essence, JMC manages the GOCO and GOGO ammunition installations, but PEO Ammunition funds GOCO modernization efforts.

Responsibility for demilitarization. JMC is responsible for project planning, tracking and reporting, resource management, demilitarization technology and logistics support, safety, security, transportation, and environmental expertise as well as legal and contracting support of demilitarization. The Program Manager for Demilitarization under PEO Ammunition applies the typical program management responsibilities to the conventional ammunition demilitarization program, which is conducted with procurement funds.

Although the roles and responsibilities for the industrial base and demilitarization are clearly distinct, they have not been executed with the same amount of clarity. Duties overlap, and it is often hard to determine who is responsible.

Facility improvements at GOCO plants and demilitarization are not the only things funded with ammunition procurement dollars. The salaries, benefits, and ancillary costs of PEO Ammunition personnel, service contractors, and matrix support personnel at ARDEC are also funded with these dollars. The funding stream obscures the true per-item cost from Congress and causes duplication of effort.

Alignment. The three organizations in the JM&L LCMC do not have a shared list of items for which they are responsible. ARDEC serves as the research, development, and engineering center for ammunition and armaments. Over time, the Army learned the wisdom of having projectiles and howitzers, guns, rifles, and mortar tubes work well together, so having ARDEC responsible for all of them makes sense for that research and development mission. However, it means that ARDEC works on projects that align to two AMC major subordinate commands (TACOM and JMC) while reporting to a third (RDECOM).

PEO Ammunition is responsible for the acquisition of common (used by more than one service) conventional ammunition.[16] However, despite its name, PEO Ammunition is responsible for the acquisition of much more than common ammunition, as it also has program managers for towed artillery and a variety of anti-improvised explosive device vehicles and systems. As such, PEO Ammunition programs align with TACOM LCMC in addition to JM&L LCMC.

As the sustainment arm of JM&L LCMC, JMC also provides logistics support to other Army organizations involved in class V, including the Aviation and Missile LCMC and the Army Space and Missile Defense Command, and to the other military services for missiles and non-SMCA [single manager for conventional ammunition] ammunition items, such as Navy depth charges. This mission aligns JMC with multiple LCMCs and PEOs. JMC and PEO Ammunition's differing responsibilities for non-Army class V add to the complexity.[17]

Management of stocks in theater. The management of ammunition in the theater of war has not attained the levels of efficiency and effectiveness typically found in CONUS. There are two contributing factors. First, because the Army relies on contractors to operate its ammunition supply points (ASPs) in CONUS, few Soldiers have hands-on experience in operating an ASP.[18] Second, the CONUS ammunition storage sites are fixed installations with experienced staffs, while the theater ammunition storage facilities are less permanent with staffs that rotate in and out of theater without developing long-term working relationships.

Courses of Action to Reduce Ammunition Issues

One possible course of action is to return to the management structure of the past. At various times in the history of AMC, the research, development, and engineering centers reported to the AMC major subordinate commands, as did the contracting centers. This structure provided unity of command not found in today's organizational structure. For example, as recently as 1994, ARDEC, the contracting office at Rock Island, Illinois, and associated program managers were all part of the Army's Armament, Munitions and Chemical Command, a predecessor of JMC.

Nostalgia may cause us to forget why the Army Contracting Command and RDECOM were formed. In the case of the contracting centers separating into their own command, the Gansler Commission[19] believed that aligning and consolidating contracting and command authority was important to achieving the best possible Army contracting capability. Poor contract oversight in theater was the impetus behind the Gansler Commission. The alignment of all research, development, and engineering centers under RDECOM derived from a similar study in response to issues at that time.[20] However, a return to the structure of the past is not feasible, and we do not want to go back to the future.

With that said, there are actions that we can take to reduce friction in the ammunition community, such as better structuring the components of the JM&L LCMC and improving logistics support to Soldiers and other ammunition users.

This second possible course of action has three key steps and focuses on the roles of JMC and associated PEOs.

Step 1: Assign responsibility for GOCO production plants to PEO Ammunition. In the area of industrial base management, an ongoing pilot program of AMC special installations creates an opportunity for change. If the pilot succeeds, the garrisons for the GOCO ammunition plants, which are currently under JMC command, will align under the Army Installation Management Command (IMCOM).

Since PEO Ammunition provides the workload for the ammunition plants (either directly or through competitive procedures) and funds their equipment and facility requirements, it makes sense for the PEO to assume total responsibility for their production. Having PEO Ammunition assume total responsibility for production at the GOCO ammunition-producing plants eliminates one area of duplication between JMC and PEO Ammunition and streamlines responsibility for managing that portion of the organic industrial base. This change can occur whether or not the AMC/IMCOM special installation pilot succeeds.

Step 2: Assign responsibility for class V to JMC at milestone C. Army Regulation 70–1, Army Acquisition Policy, recognizes the PEO as both the materiel developer and life-cycle manager and AMC as the responsible sustainment organization. This leads to a possible solution for the issues involved with transition and demilitarization.

Although there is currently no formal transition process from ASA(ALT) to AMC, there comes a point when the sustainment organization needs to do the work. For ammunition, that point is when the item is fielded; after that, the item needs the logistics sustainment functions of storage, surveillance, distribution, and demilitarization. A PEO Soldier pilot program, which will be discussed later, shows how this can work.

Demilitarization is a key tool in stockpile management for any commodity, but particularly for ammunition. Year after year, the ammunition procurement dollars devoted to demilitarization are insufficient. In fact, more than one-third of the ammunition stockpile is now awaiting disposal. This requires JMC to maintain more storage capacity than is needed for contingency requirements. With an aggressive schedule of demilitarization, the Army's ammunition footprint can shrink substantially. As the ammunition sustainment program becomes more efficient, taxpayers save money in the long run.

The recommendation in this area is to have JMC assume all responsibility for managing and conducting demilitarization operations as part of its joint ammunition stockpile management mission. PEO Ammunition's role in demilitarization will be to create ammunition that can be destroyed. Since JMC's stockpile management extends to missiles, the demilitarization of the Aviation and Missile Command's, the Army Space and Missile Defense Command's, and other services' missiles should be included as well since those items contribute to the storage problems at JMC's depots.

Step 3: Assign responsibility for class V stocks in theater to JMC. As for ammunition in theater, since JMC manages wholesale ammunition at CONUS storage depots and retail

[15] DOD Instruction 5000.02, Operation of the Defense Acquisition System, dated 8 December 2008, provides additional detail in this area.
[16] As the DOD executive agent, the Army is responsible for managing common conventional ammunition. The Army's role as single manager for conventional ammunition (SMCA) began in 1977.
[17] See *Conquering Complexity in Your Business* by Michael L. George and Stephen A. Wilson (McGraw-Hill, New York, 2004) or *Waging War on Complexity Costs* by Stephen A. Wilson and Andrei Perumal (McGraw-Hill, New York, 2009) for a discussion on how complexity increases cost.
[18] Captain Theodore L. Zagraniski and Chief Warrant Officer 2 Gary N. Carr, "Training Ammunition Supply Soldiers While Deployed," *Army Sustainment*, Vol. 43, Issue 2, March–April 2011, pp. 42–46.
[19] Report of the Commission on Army Acquisition and Program Management in Expeditionary Operations, 31 October 2007.
[20] AMC established RDECOM as a provisional organization on 9 October 2003 and as a permanent organization on 1 March 2004.

ammunition at CONUS ASPs, JMC can manage ammunition in theater. In fact, placing the same command in charge of ammunition stocks at both ends of the pipeline can eliminate one of the most troublesome issues in ammunition distribution: accountability. If one organization is responsible for the ammunition that goes on the ship and for picking it up when it comes off the ship, accountability is more easily maintained.

Although JMC ammunition managers support theater sustainment units and manage in-theater ammunition from a wholesale perspective, they do not manage ammunition at the ASP level in theater. Thus, JMC has sent team after team to theater to reconcile records and ensure that the stocks in theater are safe and functional. A better way is to have JMC manage those stocks on site. A JMC ammunition manager, along with quality assurance specialists (ammunition surveillance),[21] can provide the onsite technical expertise that deployed ammunition units require. Under this proposal, Ordnance units can continue to perform the ammunition work in theater, but JMC can manage the stocks, much as it does in CONUS.

Considering the Second Course of Action

The second course of action, with its three steps, can streamline both PEO Ammunition and JMC as they enter the down phase of the DOD budget cycle. Although the changes would likely cause reductions at each organization, both are better positioned to support the Army in a more austere fiscal environment.

A pilot program currently underway at PEO Soldier[22] demonstrates how this can work. PEO Soldier found that its program managers are not taking full advantage of AMC's core competencies and organic capabilities. Instead, program managers are executing sustainment of fielded items. They are not completing sustainment execution plans quickly and comprehensively, and the plans that are completed are not appropriately resourced and documented.

The PEO Soldier pilot addresses these issues by recognizing that sustainment execution properly belongs to AMC organizations because that is their core competency. Examples of items that are fully transferred for sustainment include the M249 squad automatic weapon, M2A1 .50-caliber machinegun, extended cold weather clothing system, and advanced bomb suit. Going back to the chart on page 58, in this pilot program, PEO Soldier is responsible for the life cycle before milestone C and AMC is responsible for the life cycle after milestone C.

If these changes were adopted for ammunition, JMC would function more like DLA Distribution and DLA Disposition Services.[23] DLA Distribution provides worldwide receipt, storage, and issue of assigned commodities (practically anything other than class V) from its 25 distribution centers. DLA Disposition Services provides reuse, transfer, sale, and disposal of excess DOD property (again, for practically anything other than class V).

While we strive for efficiency in the Army, the necessities of war often make efficiency take a backseat to effectiveness. With overseas contingency operations drawing to a close and budgets being reduced accordingly, it is evident that the Army can no longer sustain duplication of effort in the management of class V. We believe now is the time to adopt a new way of doing business for class V and end the redundant capabilities that are in place.

Therefore, we recommend that the Army take action to realign the roles of PEO Ammunition and JMC. JMC can divest responsibility for the GOCO ammunition plants to PEO Ammunition. JMC's ammunition storage and distribution depots can remain with the command and produce ammunition according to requirements and capabilities. PEO Ammunition and its program managers can complete sustainment execution plans with JMC so that JMC assumes responsibility for class V items beginning at milestone C and continuing through demilitarization and disposal. Finally, JMC can manage outside-CONUS retail ammunition the same way it already manages CONUS retail ammunition.

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Stephen D. Abney is the public affairs chief for the Joint Munitions Command. He was the public affairs officer for Defense Logistics Agency Europe from 2001 to 2006. He holds a bachelor's degree in demography from the University of Kentucky and is a graduate of the Army Advanced Public Affairs Course at the University of South Carolina and the National Security Management Course.

[21] JMC serves as the career program manager for both the ammunition manager and quality assurance specialist (ammunition surveillance) (QASAS) civilian career programs. Members of the QASAS career program have mandatory mobility. Although they are assigned to installation staff table of distribution and allowances positions, their assignments come from JMC.

[22] PEO Soldier briefing, "Sustainment Execution Initiatives Update for Lieutenant General William N. Phillips," dated 29 November 2011. Lieutenant General Phillips is the military deputy to the ASA(ALT).

[23] Until a recent renaming, these commands were known as the Defense Distribution Command and the Defense Reutilization and Marketing Service, respectively.

An Enlisted Soldier Graduates From the Theater Logistics Planners Program

by Specialist David J. McCarthy

Any operation in the Army requires planning and preparation. Soldiers often fail to realize just how much planning goes into an event to make it work. But the students attending the Theater Logistics Planners Program (TLog) at the Army Logistics University at Fort Lee, Virginia, understand because they are immersed in planning and preparation every day.

"This course gives you a whole new level of confidence in yourself," said Sergeant Major Sean Rice, the 82d Sustainment Brigade S–3 noncommissioned officer-in-charge and the first enlisted Soldier to attend TLog. "That confidence is bolstered through being involved in the premier logistics course in the Army and by the fact that you are truly a demonstrated master logistician upon graduation."

TLog is held twice a year and is a 5½-month-long course. It immerses students in every aspect of sustainment planning.

"The Theater Logistics Program was created from a previous course when it was identified by the Combined Arms Support Command commander that there was a gap in the Army education program for logistics at the operational level," said Lieutenant Colonel Alexander Greenwich, director of TLog. "[TLog] was reinvented to create planners. We needed the equivalency of the planning capability that the School for Advanced Military Studies [SAMS] produces for the Army."

TLog replaced the Logistics Executive Development Course and was made to complement the SAMS course. Whereas SAMS graduates have more of a focus on operational maneuver, TLog graduates can bring that same level of advanced operation from the sustainment operations side.

TLog is taught in a way that ensures that students will fully comprehend logistics operations at the corps level and above. Throughout the course, students are constantly tested on the "so what?" factor. The "so what" factor refers to the question, "Why is what you are briefing important?" That lesson begins at the very start of class.

"Initially, you have a lot of academic and classroom-oriented work in this program," said Captain Matthew Panepinto, a TLog student. "I have learned that you have to make sure that the information that is available to you is both relevant and credible."

However, simply verifying the information is not enough. TLog students are taught to look at information from all angles.

"When you present information to a superior, whether that's your company commander or your brigade commander, you have to consider what this information means to them as a leader," said Captain Panepinto. "You have to consider how the information you are giving them will assist them in managing the organization and support Soldiers going forward."

TLog has traditionally been reserved for senior company- and field-grade officers and Department of Defense civilians. Having the first enlisted Soldier attend the course signifies potential for great opportunities for the senior enlisted corps.

While the addition of senior NCOs to the course could prove to be a force multiplier for the Army, the instructors warn that the course is not for everyone.

"You have to realize that Sergeant Major Rice is a unique individual," said Lieutenant Colonel Greenwich. "He's got skill sets that not a lot of sergeants major have." Greenwich explained that many sergeants major are precluded from attending the class because of their education.

Sergeant Major Rice recommends encouraging NCOs early on to complete a 4-year college program. "You've got to have the formal education to attend this course," he said. "If you can start an NCO out young on his or her career path and give them the time for their education, they should be able to attend."

The uniqueness of TLog makes for a powerful learning environment for students who want to learn as much as they can about sustainment operations.

TLog instructors hope that commanders will begin to see the potential that the program has for the future. Students are doubly rewarded by the unique instruction and by receiving 12 credit hours from the Florida Institute of Technology. Sergeant Major Rice is planning on using the credits to help him work toward the completion of his master's degree.

"The implications of this course for the NCO corps are huge; we need to get the senior NCO corps more involved," Sergeant Major Rice said. "The return on the investment in this course is invaluable."

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AMMPS Fielding Is Underway in Afghanistan

In July 2012, the Army fielded the first 81 of approximately 1,600 advanced medium mobile power sources (AMMPS) generators planned for units in Afghanistan over the next year. These new generators range in size from 5 to 60 kilowatts and are expected to be distributed to as many as 15 outposts to replace tactical quiet generators.

AMMPS generators are 50 percent more reliable than the generators they will replace. Once fully implemented, AMMPS are expected to avoid 346,000 hours of maintenance manpower a year in Afghanistan. The generators are also expected to cut fuel consumption in theater by 21 percent.

AMMPS generators are being fielded by Project Manager Mobile Electric Power (PM MEP) in partnership with the Rapid Equipping Force. In addition to the generators, PM MEP is providing training and energy specialists to help with the transition.

AMMPS generators are not only important on the operational energy front. They are more capable of supporting the soon to be fielded Capability Set 13, the Army's first integrated package of tactical communications equipment, than the current power solution is.

Lean Six Sigma Project Improves Inventory Planning for Cartridge and Propellant Actuated Devices

A Lean Six Sigma project at the 21st Theater Sustainment Command has applied technology to improve inventory planning and management of cartridge actuated devices (CADs) and propellant actuated devices (PADs). Under the supervision of Colonel Joseph Tirone, Christina Wall initiated the project, which captures and stores real-time requirements from the unit level in a central location and provides users with valuable tools for managing the inventory of these explosive items used in aircraft ejection, life support, and fire-suppression systems within Army aviation assets.

Each CAD and PAD has a defined service life and must be replaced when expended or when it reaches its expiration date. (If a CAD or PAD is found to be defective or expires, it can cause the grounding of aircraft.) The program used in the Lean Six Sigma project will enable end users to enter the tail number of each CAD and PAD installed and then automatically configure the service life of the item based on the information provided. The system will then send an email to the user and manager of the device to remind them to request a replacement when it is needed.

Additionally, this real-time visibility will provide key technical and logistics notices concerning the extended service life of devices, interchangeable CADs and PADs, and the number of items required in each aircraft.

In keeping with the cradle-to-grave concept, overall responsibility for sustainment remains with the item manager located at the Joint Munitions Command (JMC). However, day-to-day responsibility is delegated to the ammunition managers assigned to the aviation units and is managed within theater and expeditionary sustainment commands.

Theater sustainment managers have long relied on unit planning to predict the quantities of CADs and PADs needed on a yearly basis to replace expiring items, but unit planning did not take into account any Ammunition Information Notices affecting the serviceability of installed items.

Monthly accounting was done using a time-consuming, labor-intensive manual worksheet encompassing thousands of expiration dates of CADs and PADs installed on hundreds of aircraft. The large volume of manual information accumulated using this method sometimes resulted in duplicating or missing sensitive information, and data verification was not possible to accurately project replacements. Unforecasted CADs and PADs led to short resupply notices and additional transportation costs. Long leadtimes (typically 6 to 8 months) also were associated with replacing inventories.

Automating CAD and PAD inventories will give the JMC item manager the opportunity to plan device requirements, procurement, and arrival in theater more precisely. The technology from the Lean Six Sigma project is giving end users an at-a-glance ability to plan inventories. The technology also assists with maintenance scheduling to ensure that the full life of each CAD and PAD is expended, thereby avoiding loss of serviceability and the cost of premature replacement.

The management tools developed in Europe will be incorporated into the future Aviation Logistics Enterprise–Platform for Army-wide use.

Army Sustainment Editor Retires

Robert D. (Bob) Paulus, editor of *Army Sustainment*, retired on 3 July after 32 years service to the magazine. Bob began his career as a Department of the Army civilian in 1979 as a public affairs and communications intern assigned to *Army Logistician* magazine. During his career, Bob served as an assistant editor, the associate editor, and the editor of the magazine. In 2009, he oversaw the transformation of the magazine from *Army Logistician* to *Army Sustainment*, which expanded its scope to include human resources, finance, and medical services. Bob's military knowledge and editorial expertise will be missed by the *Army Sustainment* staff and readers alike.

Redistribution Property Assistance Team Academy Mobilizes to Train Deploying Soldiers

In March, a mobile training team from the 541st Combat Sustainment Support Battalion (CSSB), 402d Army Field Support Brigade, came to Camp Shelby, Mississippi, from Kuwait to train New York Army National Guard Soldiers in redistribution property assistance team (RPAT) skills.

The 427th Brigade Support Battalion (BSB), 27th Brigade Combat Team, 42d Infantry Division, was notified a month before its deployment to the U.S. Central Command (CENTCOM) area of operations that it would be split into small teams to support the Operation Enduring Freedom (OEF) CENTCOM Materiel Retrograde Element (CMRE) mission in Afghanistan.

Because the brigade combat team that was assigned to train the 427th BSB did not have the organic expertise to train the unit on the CMRE mission or RPAT operations, the 402d AFSB was tasked to provide training support.

The 402d AFSB, in turn, tasked the 541st CSSB and the CSSB's 227th Quartermaster Company with moving its RPAT academy and its 29 cadre from Kuwait to Camp Shelby within 7 days of notice.

In order to meet training requirements on time, the course was condensed from 9 to 5 days by extending training days to 12 hours and deleting classes that did not apply to units being trained for OEF operations. Soldiers received training in a number of supply processes as well as training on the Army Reset Management Tool and the Theater Provide Equipment Planner. After 4 days of classroom training, the course culminated in a practical exercise in which the cadre acted as customers during the turn-in process and took similar shortcuts to those that customers would when turning in equipment.

The RPAT academy cadre trained 209 Soldiers from the 427th BSB and certified them as wholesale responsible officers. These Soldiers then deployed to OEF where they received additional training from 227th Quartermaster Company personnel.

Mass Atrocity Response Operations Handbook Now Available for Military Planners

On 11 August 2011, President Barack Obama directed the establishment of an interagency Atrocities Prevention Board to coordinate a whole of Government approach to preventing mass atrocities and genocide. Presidential Study Directive–10, The Presidential Directive on Mass Atrocities and Genocide, was later codified in the Department of Defense's Strategic Guidance, Joint Publication 3.07, and the Army Operating Concept as Mass Atrocity Response Operations (MARO).

The Army's Peacekeeping and Stability Operations Institute's *MARO Mass Atrocity Response Operations: A Military Planning Handbook* defines MARO as, "a contingency operation to halt the widespread and systematic use of violence by state or non-state armed groups against non-combatants."



A mobile Kalmar container handler rolls onto the training site at Camp Shelby, Mississippi, during the practical exercise portion of redistribution property assistance team training.

Though MARO is a new military term, it shares many similarities with other types of Army operations. Sustainment planners will continue to focus on doctrinal planning considerations such as sustainment preparation of the operating environment. However, sustainers planning MARO must consider how their efforts affect the relationships between the killers (perpetrators), the victims, and interveners as well as effects on nongovernmental and private volunteer distribution systems.

The MARO handbook is available online at http://pksoi.army.mil/PKM/publications/collaborative/collaborativereview.cfm?collaborativeID=3.

Power User Conference Highlights Up and Coming Technologies

Project Manager Mobile Electric Power (PM MEP) held the Power User Conference from 8 to 10 May 2012 at Aberdeen Proving Ground, Maryland. A total of 244 Soldiers, Sailors, Airmen, and Marines attended the event designed to address battlefield power issues.

Attendees checked out new systems being fielded and provided input about systems in use to combat developers, materiel developers, sustainment commands, and Department of Defense leaders in operational energy. The technology on display at the conference included advanced medium mobile power sources, improved environmental control units, solar panel networks, and the load-demand start-stop microgrid system.

This year's conference was especially important as major changes to energy systems and standards were underway in the field.

Medical Museum Reopens

The new home of the National Museum of Health and Medicine opened in Silver Spring, Maryland, on 21 May, marking the 150th anniversary of its founding during the Civil War as the Army Medical Museum. The museum recently became an element of the Army Medical Research and Materiel Command at Fort Detrick, Maryland. The new 20,000-square-foot facility houses a 25-million-object anatomical and medical history collection, including the world's largest collection of microscopes. The museum previously was located at Walter Reed Army Medical Center in Washington, D.C., which closed as a base closure and realignment measure in August 2011.



PROFESSIONAL DEVELOPMENT

Skill Identifiers Are Approved for Capability Developers

Headquarters, Department of the Army, has approved a proposal by the Army Capabilities Integration Center, Army Training and Doctrine Command (TRADOC), to establish officer and warrant officer skill identifiers and an enlisted additional skill identifier of 7Y for Soldiers who have successfully completed the Capabilities Development Course conducted at the Army Logistics University (ALU) at Fort Lee, Virginia.

The Capabilities Development Course, previously known as the Combat Developers Course, is offered by ALU's College of Professional and Continuing Education. The 2-week course prepares individuals to conduct various Joint Capabilities and Integration Development System activities, including requirement analysis, capabilities-based assessments, and development of supporting documents, such as the DOTMLPF [doctrine, organization, training, materiel, leadership and education, personnel, and facilities] change recommendation, initial capabilities document, capabilities development document, and capabilities production document, in support of the Acquisition Life Cycle Model and Force Management Process.

Acquisition reviews and the recently released "Decker/Wagner Report on Army Acquisition Reform" have pointed to the need to formalize the training, identification, and qualifications of capability and requirement managers and TRADOC capability managers as the acquisition community does for program managers and program executive officers because of their responsibilities. In support of the acquisition community, capability developers and requirements managers at the TRADOC centers of excellence, capability development integration directorates, the Army Special Operations Command, the Army Medical Department Center and School, and in other Army command force modernization positions determine operational warfighting gaps and establish the requirements for and deliver both non-materiel and materiel solutions.

Soldiers interested in attending the Capabilities Development Course should enroll through their training officer using course code 2G–SI7Y/551–ASI7Y. Additional information on the Capabilities Development Course and its prerequisites is available at www.almc.army.mil/ALU_COURSES/ALU-COURSES.htm.

Writing for *Army Sustainment*

If you are interested in submitting an article to *Army Sustainment*, here are a few suggestions. Before you begin writing, review a past issue of *Army Sustainment*; it will be your best guide. Then follow these rules:

- ❑ Keep your writing simple and straightforward (try reading it back to yourself or to a colleague).
- ❑ Attribute all quotes.
- ❑ Identify all acronyms, technical terms, and publications (for example, Field Manual [FM] 4–0, Sustainment).
- ❑ Do not assume that those reading your article are necessarily Soldiers or that they have background knowledge of your subject; The *Army Sustainment* readership is broad.
- ❑ Submissions should generally be between 800 and 4,000 words. (The word limit does not apply to Spectrum articles. Spectrum is a department of *Army Sustainment* intended to present researched, referenced articles typical of a scholarly journal.)

Instructions for Submitting an Article

- ❑ *Army Sustainment* publishes only original articles, so please do not send your article to other publications.
- ❑ Obtain official clearance for open publication from your public affairs office before submitting your article to *Army Sustainment*. Include the clearance statement from the public affairs office with your submission. Exceptions to the requirement for public affairs clearance include historical articles and those that reflect a personal opinion or contain a personal suggestion.
- ❑ Submit the article as a simple Microsoft Word document—not in layout format. We will determine layout for publication.
- ❑ Send photos and charts as separate documents. Make sure that all graphics can be opened for editing by the *Army Sustainment* staff.
- ❑ Send photos as .jpg or .tif files—at least 300 dpi. Photos may be in color or black and white. Photos embedded in Word or PowerPoint will not be used.
- ❑ Include a description of each photo submitted and acronym definitions for charts.
- ❑ Submit your article by email to usarmy.lee.tradoc.mbx.leeasm@mail.mil or by mail to—

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If you have questions about these requirements, please contact us at usarmy.lee.tradoc.mbx.leeeasm@mail.mil or (804) 765–4761 or DSN 539–4761. We look forward to hearing from you.

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