ARMY LOGISTICIAN

NOVEMBER-DECEMBER 2002

Arctic Logistics

PB 700-02-6 Headquarters, Department of the Army

ARMY LOGISTICIAN

PROFESSIONAL BULLETIN OF UNITED STATES ARMY LOGISTICS

PB 700–02–6
VOLUME 34, ISSUE 6
NOVEMBER-DECEMBER 2002

Army Logistician (ISSN 0004–2528) is a bimonthly professional bulletin published by the Army Logistics Management College, 2401 Quarters Road, Fort Lee, Virginia 23801–1705. Periodicals postage is paid at Petersburg, VA 23804–9998, and at additional mailing offices.
Mission: ***Army Logistician*** is the Department of the Army's official professional bulletin on logistics. Its mission is to publish timely, authoritative information on Army and Defense logistics plans, programs, policies, operations, procedures, and doctrine for the benefit of all logistics personnel. Its purpose is to provide a forum for the exchange of information and expression of original, creative, innovative thought on logistics functions.
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Postmaster: Send address changes to: EDITOR ARMY LOGISTICIAN/ALMC/2401 QUARTERS RD/FT LEE VA 23801–1705.

COVER

Keeping a brigade adequately supplied while conducting offensive operations in an asymmetrical environment is challenging under normal conditions. When the temperature drops to 40 degrees below zero, providing logistics support is not only more challenging but also a matter of real-world survival. The article beginning on page 22 tells how a brigade training exercise called Arctic Blast tested the Army's cold-weather options and demonstrated that arctic temperatures need not compromise logistics support.

This medium is approved for the official dissemination of material designed to keep individuals within the Army knowledgeable of current and emerging developments within their areas of expertise for the purpose of enhancing their professional development.

By Order of the Secretary of the Army:

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General, United States Army
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ALOG NEWS

PRESIDENT RELEASES NATIONAL STRATEGY FOR HOMELAND SECURITY

On 16 July, President George W. Bush released the first National Strategy for Homeland Security in an effort to mobilize and organize the United States in a way that will protect it from terrorist attacks. In his speech announcing the presentation of the strategy to the Congress, President Bush said, "This comprehensive plan lays out clear lines of authority and responsibilities; responsibilities of Federal employees and for governors and mayors and community and business leaders and American citizens. With a better picture of those responsibilities, all of us can direct money and manpower to meet them."

The three objectives of the strategy are—

- Prevent terrorist attacks within the United States.
- Reduce America's vulnerability to terrorism.
- Minimize the damage and recover from attacks that do occur.

The entire 90-page strategy can be viewed on the Worldwide Web at www.whitehouse.gov/homeland/book/index.html.

OBJECTIVE FORCE WARRIOR LEAD TECHNOLOGY INTEGRATORS SELECTED

The Army announced in August the selection of Eagle Enterprise, Inc., of Westminster, Maryland, and Exponent, Inc., of Menlo Park, California, as lead technology integrators (LTIs) for the concept development phase of the Objective Force Warrior (OFW) Science and Technology (S&T) program. OFW is an Army flagship program focused on providing the future soldier and small combat team with combat-overmatch and skip-a-generation capabilities similar to those that Future Combat Systems (FCS) will bring to the Objective Force.

The OFW program will use a system of systems to dramatically improve individual soldier lethality, survivability, and agility while reducing combat loads from 100 pounds to less than 50 pounds. The OFW S&T program seeks to demonstrate technologies for lightweight protective combat ensembles with integrated multifunction sensors, networked communications, collaborative situational awareness, enhanced positioning navigation, networked fires, collaborative embedded training, medical status monitoring, and unmanned air and ground subsystems.

The OFW S&T program has two phases. In OFW Phase I, the two LTIs will work closely with the Army to develop the OFW concept design and system of systems architecture. In Phase II, the Army will select a single LTI to complete preliminary and detailed OFW designs and then integrate component technologies and subsystems into the OFW system of systems. Each of the two OFW LTIs will receive $7.5 million in Government funding for the 8-month Phase I effort. The Army plans to equip the first unit by 2008.

(News continued on page 42)

Statement of Ownership, Management, and Circulation (required by 39 U.S.C. 3685). The name of the publication is *Army Logistician,* an official publication, published bimonthly by Headquarters, U.S. Army Combined Arms Support Command, for Headquarters, Department of the Army, at the U.S. Army Logistics Management College (ALMC), Fort Lee, Virginia. Editor is Janice W. Heretick, ALMC, Fort Lee, VA 23801–1705. Extent and nature of circulation: Figures that follow are average number of copies of each issue for the preceding 12 months for the categories listed. Printed: 26,224. Total paid circulation, sold through Government Printing Office: 550. Free distribution by mail, carrier, or other means: 25,549. Total distribution: 26,099. Copies not distributed in above manner: 125. Actual number of copies of a single issue published nearest to the filing date: 26,749.

I certify that the statements made above by me are correct and complete: Janice W. Heretick, 17 September 2002.

Improving Maneuver Sustainment for the Objective Force

by Lieutenant General Billy K. Solomon, USA (Ret.)

The Army and its components, including the sustainment community, are adapting to new strategic and technological realities by transforming. During the 1990s, it became apparent that the methods and concepts of warfare required reexamination. The principles of war remain valid, but the application of those principles and the Army's operational methods are changing.

What is not changing, however, is the obligation of the sustainment community to provide the combatant commander with the right tools at the right time and place and in the right amounts. That obligation remains as vital today as it was during Julius Caesar's time.

Logistics began transforming during the Persian Gulf War. Operations Desert Shield and Desert Storm were watershed events in Army logistics and sustainment. The logistics deficiencies that surfaced during the Gulf War have resulted in the application of Information Age technologies and innovative management and business concepts to longstanding sustainment challenges. These changes are important, but the sustainment community must make even more profound changes to accommodate emerging strategic challenges.

The most important of those changes is cultural change. Future sustainment will continue to require innovative thinking as well as new technology. Technology alone, or even technology coupled with improved business practices, will not be enough to achieve the sustainment transformation needed to support future operations. We will require innovative applications of new technology and business practices.

Today, we are a constantly deploying Army with concurrent homeland security responsibilities. The Army no longer enjoys the luxury of concentrating its resources and capabilities on well-known enemies and only on foreign shores. The end of the Cold War and the terrorist attacks of 11 September 2001 have changed the combat service support (CSS) and maneuver sustainment and support (MSS) challenge. Today's sustainers must be prepared, more than ever before, to support both traditional and nontraditional logistics and sustainment operations in the homeland and abroad. In short, to fully understand the magnitude of the CSS/MSS changes required, we must look at CSS/MSS in the context of the changing operational environment within which the logisticians/sustainers of the future will operate.

This article lays the foundation for understanding the challenges and opportunities that are ahead and suggests broad solutions for improving sustainment operations for the Objective Force. Although the article discusses concepts and technology and materiel issues, we must remember that at the heart of the Army's sustainment system are soldiers—our most vital resource—supported by fellow soldiers, civilians, and contractors.

Building, Generating, and Sustaining Power

The central challenges to the sustainment community are embedded in the Army's CSS Transformation Campaign Plan: reducing the maneuver sustainment footprint, reducing costs, and meeting deployment goals and timelines.

Although sustainers satisfy operational demands, operators establish those demands. Sustainment transformation thus depends critically on the organizational and materiel character and operational concepts of the future Army we will have to sustain. In that sense, the Army's Future Combat System (FCS) can be considered the most important single sustainment enabler. While the first-generation (Block 1) FCS may not immediately produce all of the demand reduction needed to decrease the sustainment footprint, it will allow us to diagnose the sorts of logistics changes needed to achieve a smaller footprint in subsequent generations (Blocks II and III). In the meantime, logisticians will continue to confront the real-world challenge of sustaining fielded forces within the confines of our funding realities.

To satisfy this combination of current and future requirements, the Army's sustainment community has developed five major concepts to serve as a blueprint for our CSS transformation strategy—

- Train-alert-deploy.
- Integrate sustainment into maneuver.
- Sustainment battle command.
- Rapid and assured distribution.
- Adaptive organizations.

Each of these sustainment concepts is linked not only

The recently retired commander of the Combined Arms Support Command and Fort Lee discusses the five basic concepts underlying the transformation of maneuver sustainment.

with technology enablers but also with basic changes in maneuver sustainment organizations, operations, and culture.

Train-Alert-Deploy

The overriding goal of deployment is to position combat power at the time and place and in the amounts needed to accomplish the mission. We are no longer a forward-deployed Army but rather a constantly deploying Army. Such an Army must be able to deploy and fight on arrival, as well as to stage and prepare for fighting later.

This change in the deployment mindset has significant sustainment implications. There will be—

- Little or no time to train after an alert notification.
- Rapid movement to ports of embarkation from bases and home stations.
- Deployment over strategic distances.
- Building of combat power in the overseas theater at the same time that combat operations occur and therefore without prior establishment of a developed maneuver sustainment infrastructure.

Prepackaging. Today's maneuver sustainment and support organizations (MSSOs) are still oriented to receiving an alert notification, training and reorganizing to meet the operational mission, and then executing the deployment. Tomorrow's MSSOs must be packaged, trained, and ready to deploy immediately following an alert—and those MSSOs must deploy with soldiers and equipment capable of sustaining Army forces immediately on arrival in the operational theater, regardless of the quality of the theater's reception infrastructure.

After the Gulf War, the Army developed a Strategic Mobility Plan to convert installations to power-projection platforms and allocated millions of dollars to enable continental United States (CONUS) infrastructures to deploy CONUS-based forces more rapidly. Army Pre-positioned Stocks (APS) were designed and built to meet the new force-projection challenges. The Army also made significant improvements in the deployment process, infrastructures, and assets.

Deployment training. As valuable as these changes have been, however, much remains to be accomplished. One area requiring significant improvement is the training of operational units for deployment. If Objective Force organizations are to maneuver from strategic distances, there will be no time to train for deployment on alert. Training in loadout procedures should be as routine as training in squad and platoon immediate-action drills. Unit standing operating procedures for equipment loads, sustainment packages, and individual preparation for overseas movement must be as familiar and rehearsed as those for combat operations.

Mobility warrant officer. Deployment training at the individual and unit levels is no longer a luxury but a critical skill. To assist in developing that skill, we are designing the requirement for a mobility warrant officer for assignment down to the combat brigades. The brigade mobility warrant officer will provide the brigade with deployment training and execution expertise. The mobility officer will be a movement technician who manages and controls the flow of Army transportation during unit movement operations. He will plan, organize, and supervise the movement of Army personnel and equipment. He will coordinate movement operations issues with joint, Army, and commercial agencies and provide technical interpretation and guidance on implementing and using automated transportation systems. He also will coordinate the training of unit personnel and advise and assist commanders and staffs on the elements of unit movement operations.

Deployment infrastructure. Constantly deploying forces must be prepared to overcome the infrastructure shortfalls that may confront them in the operational area as they transition from deployment to employment. Army Transformation war gaming clearly demonstrates that even a well-trained and combat-ready organization cannot meet critical employment timelines without adequate "off the ramp" deployment, employment, and sustainment capabilities.

At the same time, since both combat units and MSSOs depend on the same departure, transportation, and arrival assets, there is an inevitable tension between deploying combat power and deploying the resources needed to sustain that power. While the operational commander ultimately is responsible for ensuring that the right mix of operational and sustainment assets flows into the theater to conduct operations, logisticians/maneuver sustainers have an obligation to help make this optimization process as simple and straightforward as possible. Three vital elements of this equation are deployment infrastructure, strategic mobility assets, and sustainment processes.

In the past, we have thought about infrastructure in terms of "fort to port," in which deployment terminates in a carefully planned and elaborately developed reception, staging, onward movement, and integration (RSO&I) process. In the future, however, we will have to think in terms of "fort to fight," in which deployment terminates in a rapid commitment of combat forces with minimum RSO&I.

Moreover, given a growing access-denial threat posed by potential enemies, unimpeded access to overseas air and sea ports of debarkation cannot be guaranteed. Accordingly, we must design deployment actions on the assumption that overseas reception and sustainment infrastructure will have to be developed on the fly, even as combat forces enter the theater and begin operations.

Strategic mobility assets. One solution to the access-denial challenge is developing strategic mobility capabilities that do not depend on robust, developed ports of debarkation. Procurement of high-speed, shallow-draft sealift; theater support vessels; and advanced aerial cargo lifters will enhance deployment flexibility and diminish the vulnerability of deployment and sustainment to interruption.

In the meantime, we can use APS to bridge any gap in the timeline for deploying assets. Today's APS structure centers on the force being deployed. As Objective Force concepts mature and assets and capabilities enter service, we need to reconfigure APS to provide a better balance of operational and sustainment assets. Ultimately, as Objective Force formations become more rapidly deployable by air and sea, APS may assume a greater responsibility for sustainment than for immediate delivery of combat formations.

Sustainment processes. Perhaps the single most important piece of the deployment equation is sustainment procedures that tailor both initial and follow-on CSS/MSS more closely to the contingency and the progress of operations. Both combat and sustainment organizations must be designed from the outset for greater modularity, so that only needed assets are moved at any particular stage of deployment.

The time-phased force deployment data (TPFDD) development process likewise must be made more adaptable and responsive. Instead of the relatively rigid TPFDD procedures of the past, it must be possible to replan virtually on the fly by exploiting the power of modern automation to reconfigure upload, movement, and offload schedules in hours instead of weeks. Of course, such accelerated movement planning must be joint from the outset.

Integrate Sustainment Into Maneuver

Better strategic mobility is only part of the solution to achieving "fort to fight" capabilities. Just as important are innovative procedures for compressing RSO&I, packaging early sustainment, and linking CSS/MSS to combat formations on arrival in the theater. Of the five major concepts, sustainment integration potentially poses the greatest challenge.

Linking sustainment with operations. Logisticians/maneuver sustainers traditionally have developed plans to support combat operations only after extensive and time-consuming feasibility analyses. Operational maneuver from strategic distances will not allow that leisure. Sustainment operations must be integrated into operation plans well before execution in the same manner that the fire support concept is included in paragraph 3 of any operation order, and the plan must be developed jointly by both operators and sustainers.

> We are no longer a forward-deployed Army but rather a constantly deploying Army.

On tomorrow's distributed asymmetric battlefield, even more than on the linear battlefields of the past, time and distance will drive sustainment operations. The force protection previously afforded by positioning sustainment in the rear will not exist. Combat operations will cover a vast area encompassing widely dispersed combat elements engaged at different intensities and in different battle rhythms, with unsecured lines of communication (LOCs) spread throughout the battlespace inside an area of operations. Success will require unrelenting pressure on an enemy without pause for sustainment.

Sustainment as a tactical operation. In these circumstances, logisticians/maneuver sustainers no longer can rely on relatively short resupply distances and secure LOCs. Instead, LOCs will be long, numerous, and unsecured—more akin to those of the Vietnam War than the Gulf War. In Vietnam, unlike the Gulf War, resupply by air routinely sustained units up to battalion level for weeks at a time. Ground resupply, on those rare occasions when it was employed, required the same level of tactical planning, en route protection, and preplanned fire support as any combat operation.

Objective Force sustainment will look very much the same. As in Vietnam, air delivery and evacuation will be essential to sustainment continuity. Surface transportation will be limited and short haul and will depend on careful planning and integration into unit schemes of maneuver and fire support. Intermediate supply points and transload facilities will be scarce and of short duration and will require the use of organic or assigned protection.

Synchronizing battle rhythms. To satisfy these tactical operations sustainment requirements, battle and sustainment rhythms must be synchronized. Pulsed operations will be the norm for both combat and sustainment units. Depending on the situation, combat units may have to maneuver to receive support, sustainment units may have to maneuver to reach supported combat units, or combat and sustainment units may have to meet at a predesignated time and place. In any of these cases, sustainment planning, to be effective, must be anticipatory, flexible, and integral to tactical and operational planning and must include routine consideration of protection, both en route and during replenishment.

Managing transitions. Tomorrow's logisticians/maneuver sustainers will have to be masters of transitions, from garrison operations to deployment, from arrival in theater to support of early shaping operations, and from prolonged sustainment of decisive operations to post-conflict sustainment operations. Each transition will require a wide and diverse range of sustainment as combat formations engage in different operations at constantly changing intensities and those operations are exacerbated by an ever-increasing "fog of war" that will not evaporate.

To meet this challenge, sustainers will require planning and execution assets, including organic command, control, communications, computers, intelligence, surveillance, and reconnaissance (C^4ISR) and transport capabilities, that are equivalent to those of the combat formations they support. When combat units go deep, sustainers will have to do the same. When combat units disperse, their sustainment must do likewise. Even though combat assets are always at a premium, protection of the sustainment flow nevertheless must be afforded the necessary force protection priority.

Sustainment Battle Command

Sustainment battle command is a triad encompassing leaders and soldiers, sustainment organizations, and the information networks and processes that link them to each other and to the formations they support. Like operational battle command, sustainment battle command is not limited to military, Army, and tactical concerns. It includes commercial and nongovernmental providers, joint and sister-service agencies and facilities, and both Active and Reserve components, and it extends from the strategic through the operational to the tactical level of war—from space to the foxhole. While information systems and processes are vital elements of this system, they are only one part of the triad. Unless they are seamlessly integrated into the larger sustainment battle command framework, they will be of limited use.

Sustainment battle command operates on two distinct levels. First, within the operational battle command framework, it ensures that sustainment is integrated with operations. Second, within the sustainment organization itself, it ensures that consistent and timely information is provided and decisions are made throughout the sustainment system, from anywhere in the world to forward tactical providers. At both levels, battle command must be continuous, anticipatory, and adaptive.

Leaders and soldiers. Sustainment battle command begins with leaders and soldiers who understand combat operations, know sustainment concepts and capabilities, are comfortable in ambiguous and rapidly changing situations, and can operate with equal adeptness from the tactical to the strategic levels. A young sustainment soldier could find himself deploying strategic sustainment assets one day and operating a tactical replenishment site the next. Sustainment leaders must be as knowledgeable of operational-level and tactical-level operations as they are of sustainment concepts. Indeed, sustainment leader training must begin with operations. Attaining this level of knowledge and versatility implies changes in the way we develop and assign sustainment personnel. It also implies changes in the C^4ISR capabilities afforded logisticians/maneuver sustainers.

Organizations. Enhancing the capabilities of sustainment leaders and soldiers will pay off only to the extent that we embed them in organizations that enable them to perform effectively. While logisticians/maneuver sustainers always have constituted an essential component of battle staffs, future staff organizations must provide for much closer and more continuous integration of logistics with operational decisionmaking than ever before. Here again, fire support integration may furnish a useful model for the manner and degree to which logisticians/maneuver sustainers must be able to interface routinely with their operational counterparts.

Information systems. The final component of sustainment battle command is the information system linking intention to execution. As with supported operations, knowledge will be the key to effective Objective Force sustainment. Knowledge based on information relevant to both operational and sustainment decision makers and seamlessly available at every level of organization will be the cornerstone of a successful anticipatory logistics/maneuver sustainment strategy.

To satisfy this requirement, the sustainment information system must provide both operationally meaningful information on which to base command decisions and detailed working data needed to track logistics/maneuver sustainment assets, adjust supply flows, and predict future requirements. In other words, the logistics/maneuver sustainment common relevant operational picture must be relevant before it is common. That, in turn, implies routine transformation of relevant logistics/maneuver sustainment data into metrics that are meaningful to combat commanders; the data will be meaningful because they contribute to building, generating, and sustaining combat power without losing fidelity to logistics requirements.

While Total Asset Visibility remains a critical objective of the sustainment information system, it will be just as important to track the health of the sustainment system itself—the capacity of distribution networks, the condition of infrastructure, and the availability and condition of units—and to translate that information into knowledge that operational commanders can use to build, generate, and sustain combat power.

Rapid and Assured Distribution

Objective Force distribution is far more than merely transporting forces and supplies strategically. The Army already has made significant progress in sustaining forces in remote areas of operations, and introduction of Objective Force capabilities certainly will accelerate that improvement.

On tomorrow's battlefield, operations and sustainment will be linked as never before.

The challenge that remains is to achieve the same agility in intratheater transport and distribution. An Objective Force sustainment system must substitute velocity for mass, precision for redundancy, and real-time distribution for forward stockage. It must do these things even though perfect prediction of logistics/maneuver sustainment requirements—in the face of a thinking enemy and the hazards of nature—is no more attainable today than it has ever been.

Part of the answer to this dilemma lies in our ability to create more continuous integration of operations and sustainment and in a C^4ISR system that is better able, in real time, to diagnose and respond to developing sustainment shortfalls. Programs such as Battlefield Distribution and Velocity Management have set the course for such improvements.

Demand reduction is another key aspect of assured distribution. Improved fuels and power sources, precision munitions, maintenance prognostics and diagnostics, and modular replacement parts all can help diminish the burden on intratheater transport and thus help reduce our logistics/maneuver sustainment footprint.

But the reality is that, beyond a point, the only effective substitute for forward stockage is increased lift. In effect, whatever is not on the ground had better be in the distribution pipeline, or sooner or later shortfalls will result. Transitioning to a distribution-based sustainment system thus inevitably implies increased transportation capabilities, either direct from the supply source to the user or through faster means of transshipment among multiple strategic and theater distribution platforms. Acquiring these additional transportation assets is an essential complement to organizational and procedural changes.

Adaptive Organizations

Today's CSS/MSS organizations were designed to support Army forces on a relatively linear battlefield from a developed theater base with extensive host nation infrastructure. While these organizations have served the Army well, they will require modification in order to support future contingencies that arise on short notice in austere theaters—contingencies in which supported formations vary widely in scale and character and operations ranging from high-intensity combat to stability and support are both fluid and widely dispersed.

As combatant organizations become more tailored and versatile, the CSS/MSS organizations supporting them must do the same. Future CSS/MSS organizations must be able to link routinely to the joint arena and operate easily across the entire spectrum of conflict. They must have the inherent versatility to support diverse and rapidly changing operations without discarding the experience developed through decades of actual practice in global sustainment.

Echelonment. Traditionally, CSS/MSS organizations echelon to match the combat organizations they support. Parallel organization simplifies supporting-to-supported relationships and enhances sustainment protection, but only at the price of multiplying logistics/maneuver sustainment formations and complicating the rapid retailoring of combatant forces. On a linear battlefield, these penalties are acceptable. On a distributed battlefield, they could become unacceptable distractors and detractors.

Future CSS/MSS organizations must seek simultaneously to streamline the distribution flow and accommodate rapid and frequent changes in operational missions, forces, and directions. Doing so will require flattening of the sustainment organization, pooling of logistics/maneuver sustainment assets, and tailoring of forward CSS/MSS organization to the specific missions of the combatant formations they support. In effect, future CSS/MSS organization must feature a reduced logistics/maneuver sustainment tail similar to the skip-echelon model that worked so well in World War II, but endowed with command and control capabilities that their predecessors never enjoyed. [A corps in World War II was assigned limited CSS units; its focus was on the fight. Nondivisional battalions and separate companies and the regiments and battalions within divisions were expected to mesh directly with the army level for supplies. It was the business of army headquarters to push supply points within reach of front-line units, employing army trucks when necessary to go beyond the railhead or head of navigation. The front-line units then hauled supplies in their own trucks from these army supply points, located 20 to 30 miles in the rear. That meant that divisional regiments and battalions dealt for supplies directly with nondivisional service units under army control. So the concept was to bypass, or "skip," an echelon for support.]

A more versatile sustainment architecture must continue to balance inherent CSS robustness at the tip of the tactical spear with tailored augmentation at higher echelons of employment. At each operational echelon, there must be some measure of self-sufficiency. But self-sufficiency cannot be based solely on organic CSS/MSS capabilities at every combatant echelon. Instead, logistics/maneuver sustainment robustness must be vested in a CSS/MSS structure as flexible and as agile as the combatant organization it supports.

Leader Development and Education

The significant changes in organization, process, and command and control described above imply similar changes in leader development, personnel management, and individual and unit training. Leaders and soldiers of the Objective Force will need to be adaptive, flexible, and self-aware—critical thinkers who can understand and respond to diverse information sources and rapidly changing requirements. They must balance technical know-how and leadership skills, be able to reconcile knowledge with uncertainty, and be able to operate comfortably in the inevitable confusion of a fluid and rapidly changing battlespace. To be effective sustainers, they first must be effective warfighters; they must be knowledgeable about the operations they are supporting; and they must be able, without constant supervision, to adapt support capabilities within their scope of authority to the shifting requirements of the battle.

Producing these leaders and soldiers will require training that emphasizes a shared mission focus among soldiers and their leaders (officers, warrant officers, and noncommissioned officers), that stresses battle-focused execution, and that encourages adaptive solutions to unpredictable sustainment challenges. Such training must incorporate information management skills, joint planning, technical knowledge of branch and battlefield operating systems, battle staff skills, and leadership.

Innovative use of emerging training technologies, such as embedded training and electronic learning, are key to meeting these challenges. Live, virtual, and constructive training programs must be applied to develop realistic and demanding synthetic training environments in which operations and sustainment are modeled realistically. These programs will enhance experiential training by expanding the sustainment aspect of combat exercises at both home stations and combat training centers. In both locations, the training objective is to encourage anticipatory planning and develop the critical decisionmaking skills that will ensure effective integration of sustainment with maneuver. In both locations, training and leader development changes within the maneuver sustainment community must be delivered in both CONUS and deployed theaters and in both the Active Army and the Reserve components.

Objective Force operations will require much from sustainers. As in the past, sustainers will need to be adept at managing change. But while the environment of sustainment will change, its essential imperatives will not. The need to man, fuel, arm, feed, and fix the fighting forces has not diminished. Only the means and methods of doing so will change.

On tomorrow's battlefield, operations and sustainment will be linked as never before. Sustainment will be as critical to operational and strategic success as the weapons platforms or those who man them. Precision, speed, and versatility will be as essential for sustainment as for combat. Ultimately, sustainment will play a significant role in achieving Army Transformation.

At the same time, as we march into the future, we must remain connected to the past. Nothing about transformation diminishes our obligation to ensure that our soldiers have world-class maneuver sustainment support, including chaplain, finance, judge advocate, medical, personnel, ordnance, quartermaster, and transportation. Support in these areas always has distinguished the U.S. Army's sustainment system from that of any other army in the world, and transformation cannot be considered successful if it forfeits these basic obligations to soldiers.

Our most important obligation, however, is to contribute to victory. The touchstone of sustainment transformation will be its contribution to building, generating, and sustaining the combat power of the Objective Force. The sustainment community has never let the Army down, and I am confident that it never will.

Lieutenant General Billy K. Solomon, USA (Ret.), recently retired as deputy commanding general for combined arms support of the Army Training and Doctrine Command and commanding general of the Army Combined Arms Support Command and Fort Lee, Virginia. He is a graduate of the Quartermaster Officer Basic and Advanced Courses, the Armed Forces Staff College, the Army Logistics Management College's Logistics Executive Development Course, and the Industrial College of the Armed Forces. He holds a B.S. degree in agriculture education from Prairie View A&M College and a master's degree in contracting and acquisition management from Florida Institute of Technology.

Sustainment Transformation: The Old Way Cannot Be the New Way

by Lieutenant Colonel Stephen D. Lindahl, Major Jeff Woods, and William H. Smith

If sustainment transformation is to succeed, it must cut across the artificial institutional and historic boundaries of every proponent, component, branch, installation, and command.

> We will aggressively reduce the logistics footprint and replenishment demand. This will require us to revolutionize the way in which we transport and sustain people and materiel.
>
> —General Eric K. Shinseki
> Chief of Staff, U.S. Army

The past successes of U.S. military forces are known around the world and are a great part of history. However, these forces, including the current Interim Force, fall short of meeting the Army's transformation goals: full-spectrum operations, global projection within hours and days, and a logistics revolution. Thus, a challenging deployment and operational chasm lies between the highly successful forces of today and the transformation forces of tomorrow. To cross this chasm and meet strategic transformation objectives, the logistics community must generate and sustain combat power effectively and efficiently and simultaneously reduce the "logprint" [logistics footprint]. However, a lack of coordination in the sustainment world is impeding the full attainment of the efficiencies required to balance logprint reductions with enhanced warfighter support.

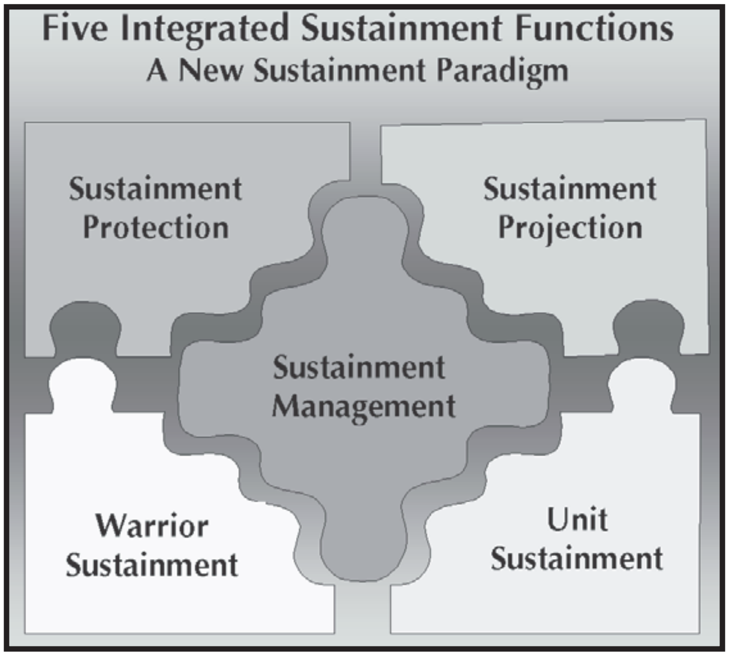
This lack of coordination results from stovepipe logistics systems that artificially and inflexibly separate how missions are assigned, doctrine is written, training is conducted, leaders are developed, units are built, systems are fielded, and business processes are used. Simply applying new technologies to old stovepipe processes will not achieve the efficiencies needed for transformation. To achieve success across the maneuver sustainment spectrum, today's logistics proponents must focus collectively on creating a holistic and seamless global sustainment concept for tomorrow.

To accomplish this paradigm shift, five integrated sustainment functions must be accomplished: sustainment management, sustainment projection, warrior sustainment, unit sustainment, and sustainment protection. These five functions fuse the logistics community together and form the supply and services sustainment pipeline from factory to foxhole.

Sustainment management is the centerpiece that connects sustainment functions together. It incorporates all of the logistics tasks required to support the warfighter into one globally oriented information management sustainment system without functional boundaries.

Sustainment management comprises the two major components of Joint Vision 2020 Focused Logistics: " . . . the fusion of logistics information and transportation technologies for . . . sustainment directly to the warfighter . . . ."

Sustainment projection is the operational arm of sustainment management. It is the transportation dimension of focused logistics, the "physical" network of the Army's distribution pipeline. It must be seamless, integrated, and joint. Sustainment projection has three distinct but interwoven strands (air, land, and sea) that make up the sustainment projection suite of distribution options required to generate and sustain combat power.



Warrior sustainment focuses on the ultimate sustainment target, the warrior. Embedding logistics support technology into future warrior systems can achieve significant logprint reductions. The goal is to fuse sustainment capability into individual warrior systems to increase self-sufficiency and reduce the logistics "tail."

Unit sustainment focuses sustainment on those functions that cannot be embedded in the warrior system and must be supplied or serviced in the battlespace. The key to future unit sustainment will be "pulse sustainment." During pulse operations, sustainment units will maneuver from security zones to link up with with supported maneuver units at predetermined mission-staging or pit-stop sites to refit, rearm, replenish, or conduct retrograde operations, or they will maneuver to the supported unit in the decisive operations zone to provide replenishment. The result will be a reoriented unit ready for the next operational pulse.

Sustainment protection is the fifth integrated sustainment function. It ensures the integrity of the distribution pipeline. Future sustainment missions will cross enemy-held spaces and travel longer distances than ever before. Future sustainers must be able to support simultaneous operations from multiple security and sustainment zones. The keys to establishing protection will be an adequate common operating picture with situational understanding, the agility and mobility required to take alternate routes, and the firepower and survivability of future systems.

The Log Warrior is the Objective Force sustainer who will be tied operationally to all sustainment functions. Log Warriors will draw on the same technologies that will empower the future Land Warrior. Objective Force battlespace logisticians must be both multifunctional and multicapable warriors who are tactically, technically, and information-management proficient. Like their combat arms counterparts, they must be able to see, understand, and act first in order to finish decisively.

If sustainment transformation is to succeed, it must cut across the artificial institutional and historic boundaries of every proponent, component, branch, installation, and command. To do this, logistics operations must be viewed holistically through the seamless sustainment lenses of the five proposed globally integrated maneuver sustainment functions and then fused to the maneuver force.

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Munitions Survivability Software

by Lieutenant Colonel George Mixon, USA (Ret.), and Duane S. Scarborough

During the initial buildup in wartime, the munitions logistics system in the theater of operations is extremely vulnerable to disruption by enemy attack. Munitions logistics nodes are large and difficult to hide and protect. Their destruction can cripple a unit's warfighting capability by creating severe munitions shortages, cause a loss of foothold by early entry forces, and critically impact operational planning and execution.

The logisticians responsible for establishing an ammunition storage area (ASA) must consider carefully how the ammunition will be placed in the area. Ammunition must be placed so that an explosion will not result in the loss of all items stored. One tool that soon will help logisticians determine optimal placement and storage of ammunition in the ASA is Munitions Survivability Software (MSS).

MSS is a computer program developed by the Tank-automotive and Armaments Command Armament Research, Development, and Engineering Center's Logistics Research and Development Activity at Picatinny Arsenal, New Jersey, through a contract with the Logistics and Environmental Support Services Corporation (LESCO) of Huntsville, Alabama.

The Department of Defense has established several safety criteria for storing ammunition. One of these criteria governs the relationship between the quantity of explosive materials contained in the ammunition and the required distance separating stacks of ammunition; this criterion is designed to ensure that if one stack explodes, adjacent stacks of ammunition will be preserved. A mathematical formula can be used to determine a safe separation distance between stacks of ammunition, based on the amount and types of ammunition being stored. MSS automates these quantity and distance calculations to help logisticians quickly establish safe field ASAs. Thus, MSS helps logisticians design ASAs that have maximum survivability and a reduced footprint. MSS also helps determine the need for materials-handling equipment and contains a template for an ASA field standing operating procedure.

MSS Advantages

The old means of designing an ASA consists of the traditional "stubby pencil and paper" and requires an experienced, knowledgeable team of personnel to integrate various conflicting requirements.

MSS developers integrated existing Army explosive safety requirements, a packaging database, Army Research Laboratory survivability models and data, current Army ammunition doctrine, and automated mapping software into one automated system. This system can provide a two-dimensional display of the supply or staging area, with overlays of unique geographic features and structures and overlays of safety protocols that point out risk areas. The software also includes information and details on how to obtain barrier materials that can be used to protect ammunition stocks without reducing ammunition quantity-distance requirements. Personnel can use the software to plan for ammunition storage as well as to react quickly and correctly to changing situations.

To assist in the survivability and management of Army ammunition in the tactical environment, MSS can—

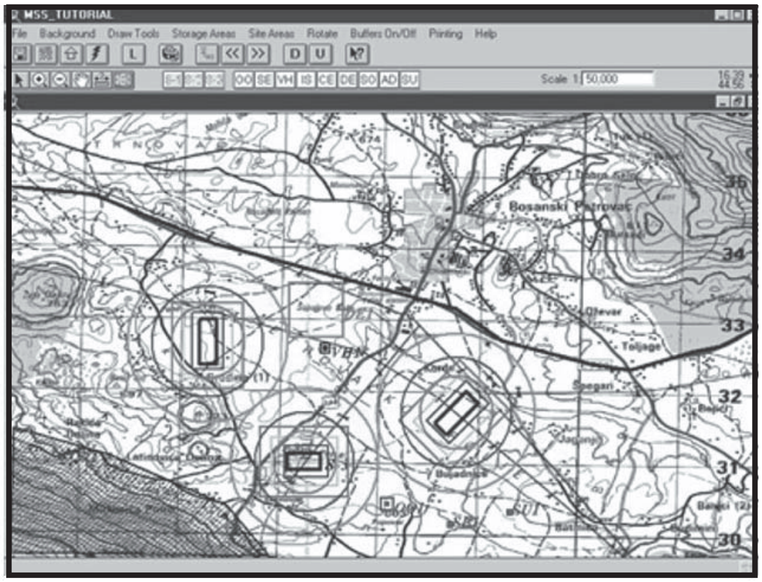
- Analyze the stockage objective to determine the munitions stocks that will need to be stored.
- Determine the amount of space the munitions will require.
- Use the space requirement and information about the site where the ASA will be located to propose ammunition storage layout plans that meet both safety and survivability requirements.
- Recommend where munitions should be stored to maximize the physical space and improve survivability.
- Provide two-dimensional representations of the storage areas.

MSS also is relatively easy to use and requires minimal operator technical knowledge.

To accomplish these tasks, MSS interfaces with several external systems by using the normal tactical communications channels, local area networks, and direct interface with certain equipment. The most significant interface is with the Standard Army Ammunition System-Modernization (SAAS–MOD). SAAS–MOD maintains the ammunition stockage information and indicative data. It is the hub for all transactions concerning movement, issue, and storage of ammunition. MSS is linked with SAAS–MOD and operates from the SAAS–MOD computer. MSS is designed only to plan safe and survivable storage of ammunition and does not duplicate the function of SAAS–MOD. Geospatial data must be obtained from a CD–ROM or the tactical Internet.

System Development

In 2001, the 321st Ordnance Battalion, an Army Reserve unit in Charleston, West Virginia, conducted three



☐ **An ASA template developed using MSS can be placed over a military map to show the exact locations of the storage areas.**

user tests of MSS. These tests showed that MSS can reduce the time it takes to lay out an ASA from 80 hours to 2 hours.

The MSS program and training also was provided to U.S. Army Europe (USAREUR) personnel to use and evaluate during Victory Strike II (a joint training exercise held in Poland in 2001). USAREUR G4 personnel were very impressed with MSS and were eager to start using it.

Immediately following delivery of the final MSS prototype software in April 2002, LESCO began developing MSS 2 to improve the existing capabilities of MSS and add ammunition management functions. MSS 2 will operate on SAAS–MOD hardware or in a stand-alone mode on any standard laptop or desktop computer.

How MSS Works

The following scenario shows the potential benefits of the MSS program to soldiers in the field.

It is 20 November 2004, and Second Lieutenant Smith, Chief Warrant Officer 3 Brown, and Sergeant First Class Hill, the advance party for their medium lift platoon, have arrived in Adana, Turkey, to support Operation Strong Desert Wind.

The advance party has a SAAS–MOD laptop computer and some standard ammunition reference material on CDs. The SAAS–MOD laptop also has the MSS program loaded on it.

Lieutenant Smith and Chief Brown meet with Lieutenant Colonel Jones, the ammunition manager for the materiel management center (MMC) (forward). Jones tells them that the medium-lift platoon will establish an initial ASA about 20 miles east of the port of Iskenderun, Turkey. Jones then draws a large oval on a military map of the area and tells Smith to set up the ASA somewhere in that "goose egg," using minimum separation distance (MSD). Because using MSD assumes greater risk and must be approved by the theater commander, Jones warns that this may change if the theater commander directs that asset preservation distance (APD) storage be used for the theater storage area (TSA).

The TSA's initial ammunition stock will arrive in 10 days on the first pre-positioned stocks ship. Jones hands Smith a Microsoft Excel spreadsheet printout of the ammunition due to arrive—in both mission-configured load (MCL) packages and breakbulk ammunition containers. The platoon's equipment will arrive with the personnel in 6 days. Jones stresses that the platoon must be set up at the new TSA and prepared to store, issue, and receive ammunition within 48 hours of the arrival of the pre-positioned stocks ship. He tells Smith to complete a terrain reconnaissance and prepare a detailed plan for where and how the TSA will be set up as quickly as possible.

Smith, Brown, and Hill meet outside the colonel's office to discuss their plans. Smith suggests that, while he prepares for the arrival of the rest of the platoon in Adana, Brown and Hill use the van and driver provided for them by the MMC to travel to the future TSA, develop a storage plan, and return as soon as possible.

Although neither Brown nor Hill has ever set up a TSA in an operational theater, they both know the ammunition business and how to use MSS. They load the SAAS–MOD laptop and their equipment into the van and begin the trip.

During the trip, Brown and Hill review their notes from the meeting with the colonel and discuss the mission. Both look at the types and amounts of ammunition that the platoon will receive, store, and issue at the TSA.

(Before deploying to Turkey, Brown had ensured that MSS was loaded on the platoon's SAAS–MOD system and kept up to date. He had ordered military maps and satellite images on CDs for the platoon's contingency plans. MSS had a module that showed him how to order standard military maps, elevation data maps for displaying terrain slope, and black-and-white satellite images of the same terrain. After all of the CDs arrived, he used the training manual to reacquaint himself with MSS until he felt comfortable with its operation. After completing the above steps, Brown was confident that he would be able to use MSS in Turkey.)

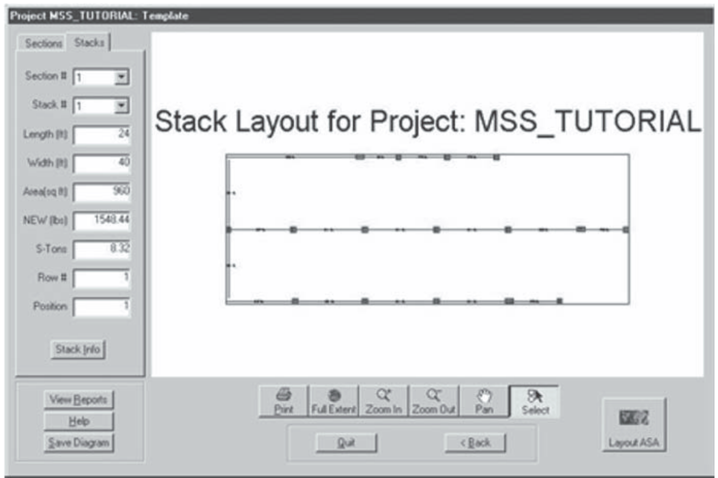
During the trip, Brown takes the SAAS–MOD laptop from its case, turns it on, and opens up the MSS program. Brown chooses "Build an ASA." He creates a file and starts building the TSA. As Hill reads the stockage objective to him line by line, Brown enters the MCL with Department of Defense identification codes

(DODICs) and quantities for the breakbulk ammunition. After entering the stockage objective, he moves on to the next screen. Data for three of the DODICs are not in his SAAS–MOD catalog database, so he finds the missing data on one of his reference CDs and manually enters it.

After entering the complete stockage objective, Brown uses an MSS report to compare the quantities entered for the DODICs and MCLs to the stockage objective. After correcting a few entry errors, he sets up the following parameters for the TSA: will be a TSA, will use minimum separation distance, will have 30,000 pounds of net explosive weight per storage pad or stack, will stack all breakbulk pallets two high, and will stack MCL containers two high.

Brown uses MSS to design the TSA using the parameters he has established. Within 30 seconds, a template screen appears for the TSA. He can view each section displayed on the screen and can use associated keys or right-click his mouse to see each section's size, net explosive weight, numbers of pads or stacks, and which pads or stacks have missiles and rockets. He clicks the "stacks" button and reviews each stack by net explosive weight, DODICs, MCLs, quantities, hazard class, compatibility groups, and pad or stack identification number. With Hill's assistance, he has created the ammunition template for his TSA in about 30 minutes. He now knows the size, shape, number of pads or stacks, and total net explosive weight for each section.

Next, Brown enters the command for the geographic information system(GIS) module of MSS so he can place the new TSA template on a military map. Even though he is familiar with MSS, he chooses to use an optional GIS wizard, which takes him through every step in laying out the TSA on a map. He follows the onscreen prompts and loads military maps, elevation data maps, and satellite images of that part of Turkey into the laptop computer. MSS verifies the grid coordinates for those CDs, so Brown knows that he has the right maps. He enters the grid coordinates for the center of the proposed goose egg that he copied from Jones's map. He clicks the display button, and the military map for his goose egg and surrounding area appears on the screen of his laptop.



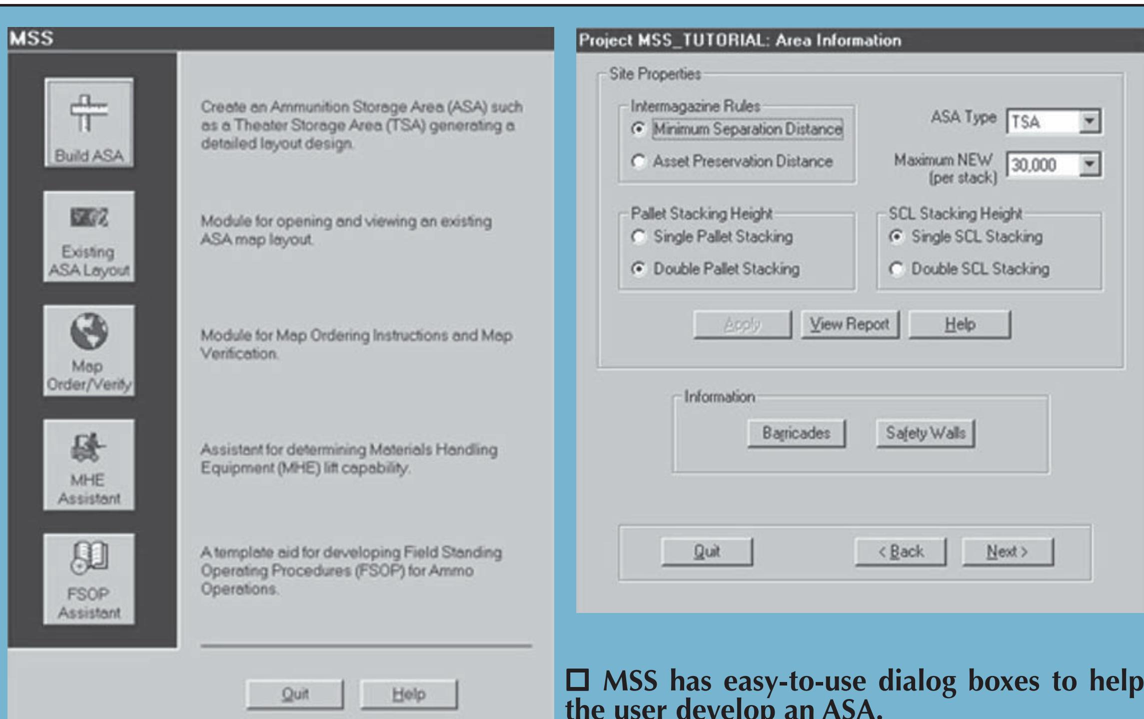
☐ This MSS template, as displayed on a computer screen, shows how the ASA should be laid out.

Brown continues to use the wizard and places each of the three TSA storage sections on the map, based on his evaluation of the map terrain and slope. He then activates the public transportation route, intermagazine distance, and inhabited safety buffers for each storage section so he can calculate the distances needed for safe storage of ammunition based on Department of Defense and Department of the Army standards. He also activates the K-factor (destructive force caused by ammunition explosions) buffers, which draw large ovals showing possible danger areas for the local civilian population and for his own soldiers. Brown saves the file for the TSA so he and Hill can work on it again after they actually see the ground and do a terrain analysis for the future TSA. Before they even arrive at the designated area, they have a good idea of what the TSA will look like using MSD storage.

After a 4-hour trip, the van enters Iskenderun and continues to the designated TSA site east of the city. Once they arrive at the site, Brown and Hill ride through as much of the proposed terrain as they can. As they ride, they mark unusable terrain on the GIS map with a simple drawing tool included in the MSS GIS module. They also identify good locations for the TSA's operational areas such as helicopter pads, operations offices, segregation areas, and demilitarization areas. Hill temporarily marks these areas on the map, using pull-down menu icons. Based on the terrain analysis, Brown and Hill reposition one storage section because of unusable terrain and another to take advantage of natural terrain to increase ammunition operations safety.

Brown feels that he has a good start on the TSA plan. After 2 hours of riding around the area and studying the terrain, they adjust the locations of the storage sections on the laptop computer screen for the last time. Based on the actual terrain reconnaissance, the plan on the laptop looks good, so, happy with their initial plan, Brown and Hill head back to Adana.

While en route, Brown remembers that this TSA might have to use APD storage, which covers a much larger area. He opens MSS, uses a file-copying tool to copy the file for the TSA, and then creates a new file that has the same data but a new name. Now he can work without having to reenter his stockage objective. He changes his storage system to APD and creates a new TSA based



❑ MSS has easy-to-use dialog boxes to help the user develop an ASA.

on the new criteria. He has to create a new map in the GIS portion that reflects the change from MSD to APD. The new TSA is nearly twice as large as the MSD-based TSA. It extends into two small villages, and its K-factor goose eggs extend to another small village. Even after rearranging his storage sections on the screen, the new APD-based TSA presents too many safety hazards to the local population. Brown knows the terrain can support an MSD-based TSA but not an APD-based TSA.

After arriving back in Adana, Brown and Hill meet with Smith and brief him on their findings about the future TSA. Brown hooks the SAAS–MOD laptop to a printer, pulls up the MSD-based TSA file, and brings up the military map display of the TSA. He prints out the TSA map in sections and puts them together. He repeats the process for the APD-based TSA. Smith, Brown, and Hill show Jones the maps and explain the future TSA plans to him. They brief him on the layout of the TSA using MSD and how it can support the operation. They also display the TSA using APD and explain how the TSA cannot be laid out in that location with the current stockage objective because the risks to the local villages and population are too great. They discuss possible options, which include requesting approval from the theater commander to use MSD in the TSA, relocating the TSA, reducing the TSA's stockage objective, and creating two smaller ASAs.

Jones is satisfied with this information, knowing he can use these detailed planning outputs from MSS to reevaluate the future TSA's location and mission in greater detail.

Determining the location and layout of an ASA, such as this fictional TSA, is crucial to the safety of soldiers and surrounding communities. Planners can use the MSS program to determine in minutes what once took days. With MSS, they can quickly and easily compare options and determine the best location and layout for their ASA. Once MSS is fielded, it will provide a quick, efficient method for laying out an ASA. **ALOG**

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Transforming Management of Army Logistics Publications

by Gregory T. Tuttle

An important building block in the Army Transformation is a fundamental reshaping of the way Army publications are managed.

The Army is in the midst of what may be the most innovative, demanding, and aggressive transformation in its 227-year history. The Army Vision establishes a requirement for an Objective Force that will be strategically responsive and capable of dominating at every point on the spectrum of operations. The terrorist attacks of 11 September 2001 and the resulting global war on terrorism have provided a new sense of urgency to the Army's efforts.

The Army is transforming what it does and how it does it. Taking a cue from businesses that have moved forward by adopting best practices, the Army is transforming its business processes to enhance the capabilities of its people and to free up resources to support warfighting. Some observers use the term "revolutionary" to describe the scope and complexity of the changes underway. While that term probably stirs images of advanced weapons, radically improved technologies, and changed doctrine and strategy, the term also appropriately describes what continues to transpire in the less glamorous but important world of managing and updating policies, regulations, pamphlets, and other publications.

One such revolutionary change that can affect Army logisticians' daily routines is the updated Digital Publications Management System (DPMS). Changes in how military power is projected, deployed, and sustained will not occur until changes are implemented in logistics policies, regulations, and pamphlets. Such publications help drive how the Army conducts its business of logistically ensuring force lethality and effectiveness from the fort to the forward edge of the battle area. Streamlining and modernizing the management and oversight of these publications has been an important goal of the Army Staff for a number of years. DPMS is the tool used to accomplish this goal.

DPMS has been in use for almost 4 years. It was developed by the Army Logistics Integration Agency (LIA), a field operating agency of the Army Deputy Chief of Staff, G4, and originally was called the DCSLOG (Deputy Chief of Staff for Logistics) Publications Management System. Before DPMS, publications management was a cumbersome, paper-driven process. It was inefficient, slow, and did not include a systematic publications review schedule. Most importantly, the old process fostered the perception that there was no central place to go for information on Army logistics regulations.

"Click" to DPMS

The old way of doing business began to change in 1998. Since that time, the number of publications managed by the Army G4 has been cut from approximately 200 to about 120. DPMS has been key to this success. The DPMS portal (http://lia.army.mil/dpmsmenu) provides a starting point when searching for logistics regulations.

DPMS preceded the establishment of the Army's portal, Army Knowledge Online (AKO), but is now an active component of AKO. Far more than a simple tool for accessing and reviewing publication review schedules, the DPMS portal provides access to publications-related chat rooms and bulletin boards and a link to the policymakers themselves.

How to Change a Regulation

At one time or another, most users have discovered inconsistencies in Army regulations, pamphlets, and policy documents. Similarly, they have been frustrated to discover that a publication is out of date.

DPMS has improved the process for identifying and processing recommended changes that will keep publications up to date. A user no longer is required to submit a paper Department of the Army Form 2028 (Recommended Changes to Publications and Blank Forms) to trigger changes. An Internet-based 2028 automatically routes logistics policy suggestions to key players in the policy development process. The user only needs to complete the automated form and submit it. Recommendations are routed to the right people automatically, and users receive a confirmation by email that the form has been received.

Access to Army G4 publications and the electronic recommended change capability can be obtained from DPMS or through the U.S. Army Publishing Agency (USAPA) Web site at www.usapa.army.mil/gils/dcslogpubs.html. The electronic 2028 feature is found in the Extensible Markup Language (XML) version of Army G4 proponent regulations and pamphlets. A new video tutorial that provides step-by-step instructions for completing the electronic 2028 is available on that same Web site.

One-Stop Shopping

The DPMS portal provides easy access to the latest information on regulations, pamphlets, and other publications, including those that are being staffed. Point of contact information for all G4 publications is provided. Users also can view proposed changes that have been submitted electronically for a particular publication.

Users with questions about logistics publications can post messages on the bulletin board that is available on the site. Other DPMS "read-only" features also are accessible on the portal. For the vast majority of users who only want to view information in DPMS, passwords are not required. However, passwords are needed to access DPMS update features or features not intended for public users. Information on how to obtain passwords can be found by clicking on the "Private Access (Password Required)" hyperlink on the DPMS portal. The policy analysis area is restricted to ".mil" users. Other users wishing access to this area should contact LIA.

The New DPMS

DPMS operates in a new policy management environment that provides opportunities to capture efficiencies made possible through use of the Internet. The Army G4 staff still performs the same basic policy review and staffing functions as it did before; however, the publications management process continues to evolve.

The evolving DPMS will have several new features that will enhance its value to users even more—

- ***Integrated view.*** An integrated environment is emerging in which users will be able to access logistics information rather than having to access logistics policy, training, doctrine, and equipment technical information separately. LIA will continue to expand the use of XML in policy publications to better link them to other logistics information sources. LIA is exploring the feasibility of modifying policy management techniques to include the capability to update regulations based on topic rather than document cycles and to electronically tie the logistics business process to the regulations, thereby better integrating the processes for updating Army regulations, pamphlets, field manuals, and other Army documents.
- ***Feedback assimilation.*** The new DPMS portal will expand access to information already in DPMS and speed the search for policy-related information. It also speeds up the process for collecting feedback from users. LIA will continue to pursue more efficient ways to assimilate user input within the policy-making process and will pass along suggestions that could impact several policy areas.
- ***Notifications of policy changes.*** LIA's goal is to provide policy users with email announcements of policy changes. Users will be able to sign up on the USAPA Web site to receive notifications on the Army regulations and pamphlets they use most often.

The Army is reorienting its posture to achieve new capabilities. Many of these capabilities will be driven by technology. Transitioning to the Objective Force will require the Army to seek fresh, innovative approaches to how it conducts business. An important building block in that transformation is a fundamental reshaping of the way publications are managed. DPMS has brought the Army publications management world into the modern age. It is only a precursor of other solutions that will emerge as the Army continues its transformation. Support to the soldier is, and will continue to be, the motivation for finding these solutions and making them available. **ALOG**

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Designing a Lieutenant Professional Development Program

by Captain Jonathan A. Hall and Captain Eric A. McCoy

Over the last 3 fiscal years, the selection rates for promotion from lieutenant to captain have been high, ranging from 95 to 99 percent. First lieutenants now are promoted to captain after 24 months' time in grade and 42 months' time in service. However, are lieutenants equipped with the knowledge and skills they will need to be effective once they are promoted to captain? Furthermore, are lieutenants getting the necessary knowledge and skills from their precommissioning training? To ensure that a newly commissioned lieutenant gets the proper foundation for success in the military, an officer professional development (OPD) program tailored specifically for lieutenants can be helpful.

OPD programs can be traced back to methods used during World War II to prepare very junior officers to assume critical positions of responsibility. Many of the regimental, brigade, and battalion commanders who made history in the Pacific, Europe, and North Africa were relatively young officers who were instructed at length by their commanders in the subjects essential for battlefield survival.

The importance of an OPD program in unit training should not be underestimated. A good company-level OPD program provides a solid foundation for improving junior officers, both technically and tactically, and assists in improving unit collective and individual training. An OPD program meets two important needs. First, it allows the commander to communicate his standards for training to his principal executors—the platoon leaders. Second, it improves the capabilities of lieutenants, enabling them to do better jobs every time they train and develop the squads, sections, and teams within their platoons.

Initial Development Phase

The initial development phase of an OPD program begins the moment a newly

Sample 30-Day Task List

Developmental Task	Evaluator	Date Complete
Complete in-processing through the battalion and company.	S1	
Complete an autobiographical sketch.	Co CDR/ Bn CDR	
Interview with battalion commander within 72 hours of assignment.	Bn CDR	
Receive company/battalion mission-essential task list (METL) briefing.	Co CDR	
Receive briefing on the role of the NCO.	CSM	
Receive security in-briefing.	S2	
Review company/battalion/brigade/post policy letters.	S1	
Review company/battalion standing operating procedures.	Co CDR/S1	
Review company/battalion/brigade command philosophy.	Co CDR/S1	
Review company/battalion/brigade/post training guidance.	Co CDR/S3	
Review field manuals appropriate to your unit.	Co CDR	
Attend battalion/brigade/post newcomers' briefing.	Co CDR	
Determine your platoon's rating chain.	Co CDR	
Receive and read rater and senior rater OER support forms.	Co CDR	
Complete your OER support form.	Co CDR	
Conduct initial counseling of NCOs you rate.	Co CDR	
Inspect and inventory your platoon equipment.	Co CDR	
Inspect and inventory your platoon worksite.	Co CDR	
Prepare hand receipt to user level.	Co CDR	
Conduct a PMCS on a platoon vehicle and an organic radio.	Motor SGT	
Supervise PMCS of platoon equipment during motor stables.	Co CDR	
Size and fit your protective mask.	NBC NCO	
Meet the battalion staff.	Bn XO	
Review DA Pam 750–1, Leader's Unit Maintenance Handbook.	BMO	
Understand and implement DA and battalion equal opportunity policy.	Bn EO representative	
Review MTOE and compare with your hand receipt and platoon roster.	Co CDR	
Receive a personnel, equipment, and training briefing from the platoon sergeant.	Co CDR /1SG	
Visit platoon sections and receive a mission briefing from each section.	Co CDR	

The authors propose a systematic lieutenant professional development program that is designed to prepare a lieutenant to become fully functional within 120 days.

Sample 60-Day Task List

Developmental Task	Evaluator	Date Complete
Read and review FM 25–100, Training the Force, and FM 25–101, Battle Focused Training.	S3	
Read and review mission training plan appropriate for your unit.	S3	
Determine your platoon's training status against the METL (MQS Tasks 04–8951.00–12.0072.0532).	Co CDR	
Brief the company commander on your platoon's training status.	Co CDR	
Conduct a platoon training meeting and after-action review.	Co CDR	
Serve as a reviewer for an NCO evaluation report.	Co CDR	
Inspect your platoon's barracks area.	1SG	
Conduct an in-ranks inspection.	1SG	
Inspect the storage of supplies, weapons, and equipment.	Co CDR	
Implement a program to conduct at least a 10-percent cyclic inventory of your equipment each month.	Co CDR	
Assign all equipment an operator, assistant operator, and a supervisor (should match subhand receipt).	Co CDR	
Inspect your platoon's maintenance records (DA Form 5988–E, deadline report).	Motor SGT	
Learn how to use and validate DA Forms 2406 and 5988–E, deadline reports.	Motor SGT	
Supervise and review the maintenance of the PLL and TAMMS records.	Motor SGT	
Brief the company commander on the equipment readiness status of your platoon.	Co CDR	
Conduct a health and welfare inspection.	1SG	
Sit in on a summarized and/or company grade Article 15 proceeding.	Co CDR	
Conduct/lead physical training (PT) for your platoon.	Co CDR	
Develop load plans for your equipment.	Co CDR	
Write a memorandum.	Co CDR	
Maintain a daily status chart of personnel and equipment availability.	Co CDR	
Describe the unit procedure for serious incident reporting.	S3	
Take the Army physical fitness test.	Co CDR	
Receive familiarization on Unit Level Logistics System-Ground (ULLS–G).	Motor SGT	
Receive familiarization on ULLS–S4.	Supply SGT	

assigned lieutenant reports to his unit. In his reception and integration counseling, the company commander should clarify critical developmental tasks that the lieutenant should accomplish within his first 4 months in the company. The company commander should annotate these tasks on the lieutenant's Junior Officer Developmental Support Form (Department of the Army Form 67–9–1a) and review them quarterly.

After his first 30 days in the company (see list at far left), the lieutenant should be familiar with basic day-to-day unit operations. Completing these basic tasks will ensure that the lieutenant smoothly transitions into the organization and will provide the building blocks for further development. During the first and second months, the junior officer should be assessing and evaluating the platoon continually. The lieutenant's developmental tasks should focus generally on branch-immaterial tasks that improve platoon-level leadership and then more specifically on branch-specific tasks that will enhance his knowledge as a company-grade officer in his particular branch area of concentration.

At the conclusion of the 60-day period (see list at left), the lieutenant should have increased confidence in his abilities to lead his platoon. Evaluators should provide the lieutenant with feedback and guidance frequently to assist him in accomplishing his mission. During the third month, the lieutenant should begin to learn the functions and critical components of company operations. He should begin to develop good interaction skills with other platoon leaders, senior noncommissioned officers, and members of the battalion staff. These skills will assist him greatly in accomplishing his platoon missions and prepare him for future assignments as a senior company or battalion staff officer.

During the lieutenant's first quarterly counseling (see list on next page), the company commander should review these checklists against the Junior Officer Developmental Support Form to ensure that the lieutenant is developing skills in the areas discussed during his reception and integration counseling. The commander should review the lieutenant's strengths and weaknesses and develop plans to correct and improve his deficiencies. This will provide the basis for the lieutenant to continue his professional development into the next quarter.

Upon completing the tasks on the 120-day task list (see list at far right), the lieutenant should feel comfortable with the missions and structure of his unit and understand his role as a senior leader within his organization.

These task lists are by no means all-inclusive; commanders are encouraged to add, change, or delete tasks as their unit missions dictate or as lieutenants progress.

Implementing an OPD Program

In many units, OPD training is held on an infrequent basis, normally at battalion level. A company OPD program can pay great dividends in enhancing the professional knowledge of company-grade officers, building their confidence, and instilling unit cohesion and espirit de corps. If possible, OPD training should be held monthly or quarterly. It should not be used as a commander's call or office meeting. Subjects should be planned at least 3 months in advance. The company commander should listen to the recommendations of his lieutenants and warrant officers, along with the guidance of his battalion commander, when determining topics to be covered.

While designing the program, the company commander should develop a comprehensive outline of subjects that will be best for the unit. After determining the types of classes needed, he should assign instructors. The commander should not feel obligated to instruct personally at all of the OPDs. By assigning specific topics to his lieutenants, the commander helps them to grow professionally by allowing them to develop and present the blocks of instruction.

The subjects should be varied but applicable to the situations and operating environment of the unit. Some recommended blocks of instruction are—

- Effective military writing (especially awards and noncommissioned officer evaluation reports).
- Supply room operations.
- Unit training.
- Orderly room functions.
- Lessons learned from military history.
- Unit operations in a tactical setting.

Classes should be 1 to 2 hours long, depending on their location and subject matter. Instructors should get everyone involved by using formats such as sand-table scenarios, role-playing exercises, tactical walks, and maintenance system checks in the motor pool. The lecture method should not be the sole basis of instruction. A combination of lecture, conference, and hands-on training methods should be used, depending on the topic

Sample 90-Day Task List

Developmental Task	Evaluator	Date Complete
Attend battalion staff meeting.	Bn XO	
Zero and qualify with your assigned weapon.	Co CDR	
Conduct reenlistment interviews of all soldiers eligible or soon to be eligible for reenlistment.	Co CDR	
Conduct quarterly NCO counseling.	Co CDR	
Prepare an NCOER.	1SG	
Conduct or war-game a summarized Article 15.	Co CDR	
Conduct a platoon leader brief or quarterly training brief with the battalion commander.	Bn CDR	
Review job performance with your commander.	Co CDR	
Qualify for and receive a military driver's license on a HMMWV and a 5-ton cargo truck.	Motor SGT	
Initiate recommendation for an award on one of your soldiers.	Co CDR	
Write a standing operating procedure (SOP) for one of your additional duty areas.	Co CDR	
Write an operation order for a platoon-level exercise with required overlays.	Co CDR	
Attend a battalion maintenance meeting.	BMO	
Become familiar with SARRS–1.*	Class IX/ SSA OIC	
Become familiar with SAMS–1.*	Shop Office	
Become familiar with unit direct support ammunition operations.*	DAO/ Co CDR	

*Examples of tasks that are branch specific, such as those in a maintenance company or an ammunition company. Tasks that are specific to the branches of officers in the company can be substituted.

to be covered and the composition of the audience. Methods involving high levels of student participation are preferable.

An incredible amount of reference material is available to help instructors plan. Unit documents, branch schools, and Army training support centers all provide useful information for an OPD program. Bringing in subject matter experts, such as having the staff judge advocate brief on disciplinary actions such as Article 15s and Chapters or touring range-control facilities, can provide a unit with the answers it needs to questions posed by its junior leaders. Another source of information that should not be overlooked is the subject matter experts within the unit; its warrant officers and senior noncommissioned officers often have more than a century's worth of collective military experience.

Sample 120-Day Task List

Developmental Task	Evaluator	Date Complete
Present your personal and professional development program to the battalion commander.	Bn CDR	
Write an article on training conducted by your platoon or company for publication in the post newspaper.	Co CDR	
Supervise training and licensing of equipment operators.	Motor SGT	
Prepare and test vehicle load plans for rollouts.	Co CDR	
Successfully complete common task testing.	1SG	
Prepare a platoon defensive overlay using sector sketches.	Co CDR	
Prepare range card for crew-served weapons.	Co CDR	
Assemble and dissassemble all weapons assigned to the platoon or company.	1SG Armorer	
Receive installaton range certification for unit's authorized weapons.	S3	
Begin professional reading program (topics according to CSA guidance).	Co CDR	
Run a weapons range.	Co CDR	
Provide a briefing to your battalion commander on weapons range.	Bn CDR	
Observe soldier-of-the-month and promotion boards.	CSM	
Plan and conduct platoon-level field or situational training exercise.	Co CDR	

A lieutenant professional development program will provide the lieutenant with the tools to accomplish missions and the insight to make decisions in executing his duties. Vision, high standards, and perseverance are important in a professional development program. A good professional development program will expand the competencies of the lieutenant and prepare him for performance at his next duty level. The program will instill high standards of professionalism, improve communication skills, and increase technical and tactical proficiency. Furthermore, it will enhance his understanding of the military and his role as a commissioned officer.

Today's commanders have an obligation to provide quality personal and professional development opportunities for their subordinates. As promotion rates increase and time in grade for promotion decreases, it is essential that we have a well-educated and professionally developed officer corps to safeguard our most vital resource: the American soldier. **ALOG**

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Commentary

The Role of the Light Support Company in Heavy-Light Operations

by Captain Keith D. McManus

Logisticians in today's Army must be able to tailor support packages to the type of maneuver force they are supporting. This could be support groups or support battalions at the corps level, or fixed-structure main support battalions or forward support battalions (FSBs) at the division and brigade levels. Each of these units is tailored to support a specific type of force. For example, a heavy FSB supports an armored mechanized brigade. It has systems support teams that organize into maintenance support teams to meet the needs of the organization.

This organizational structure works well when we concentrate on the brigade fight, as we often have in the past. But what happens when a light infantry battalion task force is attached to a heavy brigade? How about when armor and mechanized company teams are attached to a light infantry brigade? Support structures must change. Who provides support to whom? Who is responsible for what? What is the concept of support?

Light Support Company

The answer to the heavy brigade/light infantry battalion questions is the light support company (LSC). The LSC is not a new concept. However, the only time it usually is seen is during heavy-light rotations at the National Training Center (NTC) at Fort Irwin, California. Normally, two rotations are conducted per year with a heavy-light mix. I had the opportunity to take part in one such rotation in March 2000. Although it has been over 2 years since that rotation, I believe that what I learned is relevant today and will continue to be relevant in the future.

While every LSC is tailored to the supported unit and its mission, I believe that all LSCs should be able to perform maintenance, transportation, supply, and combat health support functions. Our LSC consisted of three main sections: the headquarters section, the direct support platoon, and the truck platoon. Our mission was to support a light infantry battalion task force with an engineer platoon, an air defense artillery platoon, and a 105-millimeter howitzer battery.

Problems

Integration. Most of the problems that we encountered were caused by poor integration between the FSB and the brigade staff. The heavy FSB supports its customers in garrison with supply point distribution using fixed-issue windows. That type of support is far too rigid to support the light infantry brigade. The main challenge in supporting a light infantry unit is its limited haul capability. Although its supply requirements vary greatly according to the type of mission it is performing, its organic support structure is far more austere than that of a heavy maneuver unit.

Another major factor contributing to this integration problem lies in how well the battalion forecasts its needs. If the battalion does a poor job of forecasting its requirements and reporting accurate logistics data, it is difficult to support the combat soldier.

To be successful, the FSB support operations section must be more flexible with light infantry units. The headquarters and headquarters company executive officer, the support platoon leader, and the battalion S4 of the light unit must focus on providing accurate logistics data and planning for future operations. Units that fail to do this tend to execute reactive logistics, to rely heavily on emergency resupply, and to do a poor job of supporting the warfighter.

Synchronization. Another problem that we faced was the failure to synchronize the maneuver plan and the concept of support. Many heavy maneuver brigade commanders find it difficult to use their light infantry assets effectively. In turn, heavy brigade staffs and FSBs often do not know how to support the light infantry battalion successfully. The bottom line is that it takes an enormous amount of coordination among the units.

Possible Solutions

Perhaps the best way to assist the communications flow between the heavy maneuver brigade and the light infantry battalion is to place a dedicated liaison officer within the FSB support operations section. A multifunctional logistician in the rank of captain prob-

□ **A mechanic from a light support company that is attached to a heavy brigade combat team repairs one of the company's 5-ton trucks.**

ably could fill this position best. A captain should have the experience and knowledge to accomplish the mission. I performed this job successfully as a first lieutenant, but an extra silver bar on my collar would have helped resolve issues sooner. My time was not dedicated to working only in the support operations section. I also was filling other positions, including company executive officer and maintenance platoon leader and control officer and filling in as the battalion maintenance officer regularly. In hindsight, I think that someone should be in the support operations section all the time. Therefore, an additional E–6 or E–7 with support operations experience would facilitate 24-hour coverage.

Some other issues also are important. First, completing Equipment Inspection and Maintenance Worksheets (5988–Es) is always a problem. The support platoon leader should pick up the 5988–Es during the morning LOGPAC (logistics package) operation. This does not happen as often as it should, and maintenance is nearly impossible to track without the 5988–Es. The same is true for the truck platoon. Because the platoon is out on missions constantly, maintenance often does not happen until it is too late, and vehicles are deadlined. It is critical to mission success for operators to perform preventive maintenance checks and services according to the technical manual.

Second, both the heavy maneuver brigade and the light infantry battalion should share copies of their tactical standing operating procedures (SOPs) with one another. They also should share their LOGPAC procedures. They must keep each other informed and work through problems ahead of time.

Third, common-task leadership skills such as convoy procedures and briefings, precombat checks and inspections, and risk management must be practiced. These things are especially important at the squad level. Make sure the sergeants perform risk assessments for common missions beforehand. Ensure they conduct precombat checks and inspections before, during, and after missions.

Finally, I would like to share some of the things that I feel worked well for my unit—

- Send a maintenance contact team forward to the combat trains. (Ours consisted of a unit maintenance technician warrant officer; an E–7 tracked vehicle repairer; an E–5 wheeled vehicle repairer; an E–4 wheeled vehicle repairer; a high-mobility, multipurpose, wheeled vehicle [HMMWV]; and a contact truck). This may seem like common sense, but light units do not have maintenance support teams. This helped keep the task force in the fight. In other words, fix forward.
- Have someone in the tactical operations center to interface with the brigade S4 and the FSB support operations officer.
- Send an ordnance officer to the brigade maintenance meeting. The battalion maintenance officer, usually an infantry captain or lieutenant, often does not have the maintenance experience to understand everything that is going on in the meeting.
- Conduct as many train-ups and coordination conferences as possible before the deployment. We trained at Fort Pickett, Virginia, 2 months before our rotation. Many of the support issues between the LSC and the task force were worked out before the rotation.

Heavy-light operations are difficult. They take a lot of coordination, patience, and effort. Early integration is the key to success. Anticipation and forecasting skills develop over time. Practice these skills in garrison as well as in the field. Force your young sergeants to step up as noncommissioned officers. Planning, coordination, and cooperation are the keys to the success of a heavy-light operation.

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Arctic Logistics

by Lieutenant Colonel Eric A. Wiedemann and Captain Steven P. Schultz

An Alaskan exercise demonstrated the Army's ability to provide logistics support in subzero temperatures.

In December 2001, the 172d Infantry Brigade (Separate), at Fort Wainwright, Alaska, conducted a brigade training exercise called Arctic Blast. The exercise was designed to prepare the brigade for a Joint Readiness Training Center rotation scheduled for early 2002. During the 2-week exercise, the brigade conducted airborne and air assault operations, followed by a ground assault convoy that established the brigade support area (BSA) about 100 miles south at Fort Greely, Alaska.

Keeping the brigade adequately supplied while conducting offensive operations in an asymmetrical environment is challenging under normal conditions. When the temperature drops to 40 degrees below zero, as it did during Arctic Blast, providing logistics support is not only more challenging but also a matter of real-world survival.

The 172d Support Battalion has developed solutions to problems associated with providing support in the extreme temperatures of the Arctic. Some of those solutions came in handy during Arctic Blast.

☐ An innovative system to heat the contents of "water buffaloes" uses about 5 gallons of fuel in 48 hours.

Water Support

By far the biggest challenge during the exercise was providing water in subzero temperatures. To meet this challenge, the 172d set up what was dubbed the "Arctic Oasis." This was actually an enclosed palletized load system flatrack that held two 500-gallon water blivets and associated pumps and hoses. The flatrack also contained heaters to ensure that the potable water did not freeze and was always available.

A reverse-osmosis water-purification unit (ROWPU) also can be used to produce potable water in arctic conditions. To keep it from freezing, the ROWPU, along with a connected 3,000-gallon onionskin bag, must be placed inside a heated tent.

A water-heating system developed by maintenance personnel from the brigade's 562d Engineer Company at Fort Wainright was tested during the exercise. Currently, the 400-gallon M149 "water buffaloes" are heated with "swingfire" heaters, which are small, gas-powered heaters inserted into the cylinders at the base of the M149s. These heaters have proven to be somewhat unreliable in extreme cold, so many commanders choose to protect their water supply from freezing by placing the

☐ The "Arctic Oasis" is actually a covered flatrack that holds two 500-gallon water blivets and associated pumps and hoses.

☐ **Soldiers wait in the flight zone to recover resupply bundles being airdropped by the Container Delivery System.**

M149s inside heated tents. The new system includes a thermostat that activates the heater when the water temperature falls below 40 degrees Fahrenheit and shuts it off when the temperature reaches 60 degrees. The heater consumes one 5-gallon can of fuel in about 48 hours. Arctic Blast was the first time this system was used in the field, and it was extremely successful in its first run. The 562d continues to refine the system, and it soon may be implemented more widely within the brigade.

During the exercise, one 10-man arctic tent with liner was assigned to each squad. The soldiers slept in a circular pattern around the heater, which was powered by kerosene. The walls of the tent were not secured to the ground, so the soldiers could roll out of the tent quickly in case of fire. Because the heater was operated overnight, a fireguard who was trained in the operation of the heater remained awake all night. A layer of dry, lightweight snow on the roof of the tent provided an added layer of insulation that helped keep the tent warm.

Convoy Operations

A ground assault convoy was used during Arctic Blast to establish the BSA at Fort Greely. In arctic conditions, it is important that no vehicle gets left behind because the soldiers in it could become cold-weather casualties very quickly. As an added safety and comfort measure, all vehicles are equipped with arctic heaters in addition to standard heaters. Although these heaters increase the vehicles' fuel consumption rate, they keep the passengers much warmer than the standard heaters alone. To ensure that vehicle engines do not freeze overnight, soldiers must start and run them at regular intervals. Leaving their warm sleeping bags to start their trucks at 0200 when it is –40 degrees Fahrenheit outside can be very unpleasant.

The support battalion used a small unit support vehicle (SUSV) to transport troops and supplies across the rugged terrain and snow of Alaska. The 172d Medical Company has 7 SUSV ambulances in addition to the 12 M997 four-litter ambulances they are authorized.

Resupply

The brigade's main source of resupply during the exercise was by Container Delivery System (CDS), which dropped multiple bundles rapidly from a C–130 Hercules or a C–141 Starlifter transporter and, to a lesser extent, by combat offload. (In a combat offload, aircraft land on the airstrip, open up the cargo door, and pull forward, letting pallets roll off as they taxi for takeoff.) Soldiers from the 172d Supply and Transportation Company were in the drop zone when the CDS bundles arrived. They immediately recovered the bundles and transported them back to the BSA, and the various supplies that arrived in them went forward in unit LOGPACs [logistics packages]. The photo above shows CDS recovery operations as they occurred at Fort Greely during Arctic Blast.

□ **Overwhite uniforms act as windbreakers against the frigid arctic wind. In the background is a small unit support vehicle, which is used to transport troops and supplies across the rugged terrain and snow of Alaska.**

Maintenance

During the exercise, direct support maintenance was performed in the maintenance company's heated tent. The tent accommodated one vehicle at a time and was heated by two large heaters. If the tent was unavailable, the mechanics improvised by throwing a maintenance canopy, which is similar to a heavy parachute, over a deadlined vehicle and placing a heater under the canopy. The heater filled the canopy with warm air and caused it to rise just above the vehicle, giving the mechanics the room and warmth they needed to fix minor problems.

Fuel Operations

The last function exercised during Arctic Blast that called for a dramatic departure from warm-weather thinking was bulk fuel operations. Having an entire brigade periodically idling all of its vehicles and running heaters constantly in every tent can increase bulk fuel consumption substantially. Failure to plan for this increased consumption can cause engines to freeze and deprive soldiers of the use of their arctic heaters, which is a huge problem when it is –40 degrees outside.

In addition to the increased fuel consumption rate, cold weather calls for the use of a special grade of fuel called diesel fuel arctic (DFA). Standard JP8 fuel will gel when the thermometer dips below –20 degrees, so it was essential that the 172d's 10 tank pump units and 9 5,000-gallon tankers be provided with cold-weather-grade fuel. DFA is used year-round in Alaska, but the support battalion's vehicles can use either DFA or JP8, which ensures that they can be deployed anywhere and use the Army's standard fuel.

Everything the 172d Support Battalion does is affected by the weather of Alaska. Some of the battalion's solutions to cold-weather problems are fairly obvious, while others have required a great deal of thought and many cold winters of testing. The payoff is the battalion's ability to ensure that the Army has a cold-weather option for any situation and that logistics support operations are never constrained by arctic temperatures. **ALOG**

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Falling In on Pre-positioned Stocks

by Dr. Derek Povah

The Army Forces Command's Brigade Inspection and Reconnaissance Exercise Program allows unit commanders to become familiar with the stored equipment they will draw in a contingency.

Is your unit currently on division ready brigade (DRB) status or scheduled for deployment? As a commander, are you confident in the resources that you will have at your disposal once you deploy? Are you taking all of your equipment from your home station, or will you assume control of unfamiliar equipment once you arrive at your new area of responsibility (AOR)?

Chances are you will find yourself taking possession of unit sets that have been stored as part of the Army Pre-positioned Stocks (APS) program. The APS program allows the United States to react quickly and powerfully anywhere in the world by placing unit sets for heavy brigade task forces at strategic locations. These unit sets are stored either at land-based sites or on ships.

Commanders always have concerns about drawing equipment that has been in storage, and that certainly is the case when they assume control and responsibility for stored equipment with which they are unfamiliar. They inevitably will have questions: Is the equipment mission capable? Will I need to schedule additional training for my operators because they will be using unfamiliar equipment? How much time must I allow for ship-download and equipment-transfer procedures?

To identify deficiencies and minimize the uncertainty and anxiety normally associated with deploying and assuming control of unknown equipment, the Army Forces Command (FORSCOM) G4 has initiated the Brigade Inspection and Reconnaissance Exercise Program (BIREP). BIREP allows unit commanders and their staffs to gain firsthand knowledge of the type, quantity, and condition of equipment that is similar to what they will draw when they deploy.

Background

Since World War II and the Mulberry docks (the pontoon docks used to download equipment on the beaches of Normandy), the military has been striving to find a better way to meet ever-increasing demands for deploying rapidly. When the Cold War came to an end, the United States found that it must be prepared to fight on many fronts and not focus on a single region. Adversaries of the United States must perceive that the Army has the capability to mobilize, deploy, fight, and sustain operations anywhere in the world. Because they face so many possible contingencies, commanders and organizations must be able to react rapidly to changing situations.

The goal of today's Army is to deter potential aggressors through a strong military force. One of the Army's key strategic principles is crisis response through power projection. According to Field Manual 100–17–1, Army Pre-positioned Afloat Operations—

> On short notice, the military must be prepared to deploy a mix of forces rapidly as part of a joint or combined force to a wide range of major and lesser regional contingencies.
>
> This requirement is based upon an international arena that changes constantly. To respond to these major and lesser regional contingencies, all units must be in an appropriate deployment posture. Units must maintain the capability to deploy rapidly in accordance with assigned contingency plans, OPLANs [operation plans], and so forth, in a ready-to-fight posture that projects power to end crises quickly and decisively. Force projection missions for a tailored Total Army force place a premium on planning, speed, and precision. This premium demands that the Army streamline the mobilization and deployment processes and develop the capability to respond swiftly and return in an orderly manner from any crisis.

To this end, the United States has placed unit sets for heavy brigade task forces at strategic locations around the world. To provide maximum flexibility in an uncertain environment, some equipment is stored aboard ships that are constantly at sea. These sets are referred to collectively as Army Pre-positioned Afloat (APA) and typically are stored on a ship for 30 months. APA sets constitute APS–3.

BIREP

BIREP was developed to give leaders an opportunity to gain hands-on experience with equipment similar to that they will fall in on when they deploy. It also allows them to oversee the download and issue procedures that they will encounter in a deployment. Through BIREP, maintenance and supply personnel gain valuable insights into what their deployment roles and responsibilities will be.

In conjunction with programs such as joint logistics over-the-shore (JLOTS) exercises, the Army War Reserve Deployment System (AWRDS), and the Automated Battlebook System (ABS), BIREP gives commanders all the operational data they need to plan and train for deployment and redeployment. They can witness at first hand all deployment procedures, from the ship to the equipment configuration and handoff area (ECHA) to the area of operations.

The BIREP mission is threefold—

- ***Perform visual inspections and cyclical validations of equipment and supplies stored aboard APA vessels.*** When unit leaders and maintenance crews inspect and validate equipment serviceability, commanders gain confidence that equipment stored afloat generally is in better condition than that stored in unit motor pools. When maintenance teams inspect equipment, they can identify common faults associated with long-term storage. Inspections also give commanders an opportunity to see differences between stored equipment and the equipment in their organizations. In some instances, the stored vehicles and equipment will not match up with the units' modification tables of organization and equipment, so additional unit training may be required.
- ***Conduct training in organization and procedures for the discharge and issue of APA equipment.*** To expedite download and transfer of equipment from the ECHA to the deploying unit, commanders and supply personnel must experience the procedures firsthand. BIREP is executed in conjunction with normal maintenance downloads of APA ships. Commanders and their staffs and inspection personnel are encouraged to oversee the procedures and develop a training plan based on their observations.
- ***Exercise the units identified for APA missions during scheduled APA maintenance cycles.*** Nothing can better prepare commanders for assuming control of APA equipment than a BIREP exercise. By observing the download and subsequent inspection and issue procedures, commanders and their staff elements gain valuable experience and understanding that will expedite the process if their units are required to draw APA stocks. When BIREP is used in conjunction with the AWDRS and ABS, it gives commanders all the information they need to complete their equipment deployment planning. By breaking the procedures into phases, BIREP provides a clear vision of what is required, from the initial download of the ship to the signing of the accountability transfer hand receipt.

BIREP Execution

BIREP is conducted over 10 days in four phases–

- ***Phase 1.*** All participating commands are briefed on the concept of operations. A complete APS–3 unit identification code (UIC) is issued to the deploying unit, and Third U.S. Army selects equipment for the BIREP inspection. An in-brief is conducted for the unit to familiarize their personnel with the site, provide them with safety, security, and environmental requirements, and review command expectations. This briefing is designed to provide critical information on all activities taking place during all four phases of the exercise.
- ***Phase 2.*** Pierside download and equipment configuration procedures are practiced. The port support activity (PSA) operated by the Military Traffic Management Command (MTMC) discharges equipment off the APS–3 ship. As the equipment passes through the scan point, the APS–3 support team identifies those items belonging to the BIREP UIC that were selected for issue and diverts the PSA drivers with these items to the ECHA. All other downloaded equipment is delivered to a vehicle staging area. Equipment in the ECHA then is configured into a unit set. Logistics Application of Automated Marking and Reading Symbology (LOGMARS) labels are scanned to track locations within the ECHA and monitor progress in achieving equipment readiness.
- ***Phase 3.*** In preparation for issuing equipment, the unit conducts an equipment inventory and technical inspection. An area is designated for conducting technical inspections, and inspection personnel annotate all deficiencies on Department of the Army Form 2404, Equipment Inspection and Maintenance Worksheet. In addition to rolling stock, the unit is prepared to draw, inventory, and inspect all major end items; sets, kits, and outfits; basic issue items; and sustainment stocks. The unit commander or property book officer signs the accountability transfer hand receipt for equipment issued through the AWRDS.
- ***Phase 4.*** An after-action review is conducted. The deploying unit's BIREP team provides several products for the BIREP after-action review. These products include the results of the technical inspection, to include the operational status of equipment; a written analysis of repair times associated with bringing deadlined equipment to fully mission capable status; and a written assessment of the differences between the pre-positioned set and the BIREP team's home station unit organization

and equipment. The BIREP team also assesses the readiness of equipment and provides an analysis of the handoff procedures, including hand receipt deficiencies. After inspection and documentation are complete, the unit turns in the equipment and prepares an after-action report.

BIREP Responsibilities

As a major Army command, FORSCOM is responsible for preparing forces for operational assignment and providing assistance to deploying forces as required. Its BIREP responsibilities include determining the equipment to be configured for handoff and issue during the BIREP. These requirements are determined by using the ABS and reflect a cross-section of equipment stored on the ship being downloaded.

FORSCOM also determines the warfighter personnel required to execute the BIREP. These personnel provide inspection, supply, and operational expertise and are from the same type of unit (combat service support, combat support, or combat) as those who will draw equipment pre-positioned on the ship. Taskings are routed through the FORSCOM G3 to the proposed BIREP unit no later than 180 days before the BIREP starts.

Unfortunately, BIREPs are not on the world wide training schedule. Candidates for BIREP selection are units slated for the FORSCOM heavy DRB mission or those potentially supporting the DRB's deployment in a contingency operation.

FORSCOM has funded the activation of a mobile training team to instruct planners on the use of ABS and its sister version for a Balkans deployment, the Deployment Asset Visibility System (DAVS). The team travels around the world providing instruction that allows unit deployment planners to see and use the data available in the ABS program. With the ABS, warfighters have access to equipment lists that identify line item numbers, nomenclature, condition codes, and quantities of equipment stored on the APA vessels and at land-based storage sites. The instruction provides information on all functions of the ABS and DAVS programs, from UIC selection to the final Deployment Equipment List. Users have identified the ABS program as the Army's premier predeployment tool.

Third U.S. Army, as FORSCOM's executive agent for the APA program, is responsible for executing the BIREP program and for conducting quantity and quality standards checks of APA equipment, sustainment stocks, and operational project stocks during the normal maintenance cycle. They will coordinate all port operations with MTMC, the Air Force's Air Mobility Command, and the Navy's Military Sealift Command. Also of key importance, Third Army will develop and implement a training program for active and Reserve components, including the exercise of stored equipment sets. In the event that a real-world contingency arises, Third Army will assign a UIC from the APS that the designated units will fall in on.

BIREP Exercises

Beginning in February 2000, several units have taken part in BIREP exercises: the 3d Infantry Division (Mechanized) at Fort Stewart, Georgia; the 1st Cavalry Division at Fort Hood, Texas; the 7th Transportation Group at Fort Eustis, Virginia; and the 4th Infantry Division (Mechanized) at Fort Hood. These units have conducted highly successful exercises during the normal maintenance downloads of the *USNS Yano*, *USNS Shugart*, *USNS Gilliland*, *USNS Dahl*, and *MV American Cormorant*. BIREP operations in fiscal year 2002 included the *USNS Sisler*, *USNS Red Cloud*, and *USNS Strong Virginian*.

BIREP findings include equipment condition, equipment disparities between APS sets and unit sets, and additional training needed at the unit level before the mission is executed. With the information obtained during a BIREP, commanders walk away with a clear understanding of what it takes to move their unit sets from the vessel to the AOR.

In the past, commanders have had to divide their attention between personnel and equipment. Today, with the APS program, unit sets will be waiting for them when they reach their new areas of operations. With this new strategy, however, come new concerns.

The challenge of training for a wartime deployment is difficult, but, with JLOTS exercises and BIREPs, commanders are able to practice tasks that can be simulated effectively only during an actual ship download. As a planning tool, BIREP aids commanders in fine-tuning their training schedules before a deployment. Knowing what to expect when arriving at the port and what role unit personnel will play will drastically reduce the stress and uncertainty associated with falling in on unfamiliar equipment during a deployment.

BIREP gives commanders the confidence they need in their units' ability to deploy and allows them to focus on other issues that lead to a successful transition to war. Commanders now have the tools they need not only to see into their future but also to live it. **ALOG**

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Converting APS–3 Sustainment Munitions

by Richard W. Harris

The loading of the *MV SSG Edward A. Carter, Jr.*, in February at Military Ocean Terminal Sunny Point (MOTSU), North Carolina, marked the final stage of the current evolution of Army Pre-positioned Stocks Afloat (APS–3) sustainment munitions and signaled the beginning of a more efficient, flexible means of projecting power in a contingency. The transfer of breakbulk munitions stored on board three lighter aboard ship (LASH) vessels to containers took 9 months. Although a fire on board the *MV Carter* delayed the actual loading for 7 months, the conversion was completed on time and within budget. The term "conversion" is used because bulk munitions previously stored without regard to mission relationships were converted to storage in strategic configured loads (SCLs), in which munitions relate to a specific mission or combat platform.

The Plan

In fiscal year 1998, the Army Materiel Command Combat Equipment Group–Afloat (AMC CEG–A) in Goose Creek, South Carolina, was tasked with planning and executing a $36-million project to convert 58,000 short tons of ammunition into 5,000 20-foot-equivalent-units (TEU). The TEUs then would be transferred onto two Military Sealift Command (MSC)-contracted containerships, the *MV LTC John U.D. Page* and the *MV Carter,* in two nearly identical loads.

AMC CEG–A is an element of the Army Field Support Command (FSC) in Rock Island, Illinois, which manages all APS. Several other Army commands were involved in the project. The Operations Support Command (OSC) manages conventional munitions and provided load drawings; the Aviation and Missile Command (AMCOM) manages missiles and large rockets; the Army Training and Doctrine Command (TRADOC) was in charge of configured loads and flatrack development; and the 597th Transportation Terminal Group at MOTSU controlled all cargo handling and containerization. MSC administered the vessel contract.

In the initial planning phase, the intent was to load all cargo according to the ammunition's assigned Department of Defense identification codes, which results in an inefficient use of container space for many of the denser items. Planners were not sure if all of the existing materiel would fit into the available TEUs. At that time, platforms and configurations that would provide a quantum leap in ammunition logistics were nearly 2 years away from fielding.

☐ **The *MV SSG Edward A. Carter, Jr.,* awaits loading at MOTSU.**

□ **At top, a container roll-in-out platform is removed from a container by a PLS truck. M1 flatracks are uniquely configured to accommodate multiple-launch rocket system rocket pods (middle). At bottom, Ammunition Support Team members inventory munitions.**

Breakbulk munitions originally were stored in barges with little regard for their mission or platform relationships. The M3-series container roll-in-out platform (CROP), the M1 flatrack, and carefully refined SCL drawings made the conversion to SCLs possible. Now 79 percent of the munitions in TEUs are SCLs.

The CROP is a palletized-load-system (PLS)-compatible platform that can be loaded with 32,250 pounds of munitions with minimal blocking and bracing. Fabric straps hold the load in place. The loaded CROP is rolled into a container and locked in place to prevent movement during transport.

The M1 flatrack, like the CROP, is PLS compatible, and it is also an intermodal container. For this operation, M1 flatracks were used exclusively to hold an SCL of four multiple-launch rocket system rocket pods. Using 1,376 M1 flatracks for the munitions conversion instead of an equivalent number of leased containers provided a cost avoidance in excess of $3 million over the 5-year vessel contract.

Although initially conceived by TRADOC more than 10 years earlier, the original 49 SCL designs had not been developed fully for three reasons: The CROP had not been fielded; there was significant disagreement over what constituted an SCL; and the modular ammunition platoon, medium lift, had not been implemented fully. A primary objective was to establish distinct differences between an SCL for APS–3 and a unit configured load (UCL). A UCL adapts an SCL to meet specific theater or mission needs. Close work with TRADOC and the various service schools helped achieve that goal.

The 35 SCL designs that meet APS–3 requirements are transportation-compatible push packages of ammunition that warfighters can use to—

- Carry all items necessary for a complete round of a specific artillery series.
- Load all weapon systems on multiple combat platforms, such as M1 Abrams tanks and AH–64 Apache helicopters.
- Carry complementary items for a resupply mission.

Some original SCL designs have incompatible items, which are allowed under wartime scenarios but which cannot be carried on APS–3 vessels in peacetime. Those designs were not used for the conversion. Because of the incompatibilities, and to provide some theater resupply flexibility, more than 40 different bulk-load (BKL) configurations were built to carry the remaining munitions.

The Conversion

When the conversion began on 23 October 2000, only one complete drawing from the Army Defense Ammunition Center (DAC) was on hand. The first 2,500 TEUs were to be completed and ready to load on the first containership, *MV Page*, in only 84 workdays. Over the next 10 weeks, DAC provided all SCL draft drawings and sent personnel to assist during different phases of building the loads. The final drawings produced by DAC incorporated changes that were necessary because of

☐ At left, workers reconfigure propellant light pallets. The photo above shows one of the two SCL building sites at MOTSU.

differing unitization configurations.

The first step in accomplishing the actual conversion was using the Standard Army Ammunition System (SAAS) to inventory and document the munitions as they were discharged from barges and loaded into railcars. The Ammunition Support Team (AST), which is the military extension of the accountable officer in the office of the Deputy for Munitions and Armaments (DMA) at OSC, used SAAS exclusively to track lot quantities, locations, and transactions. The DMA civilian personnel also applied two-dimensional barcodes to each pallet of ammunition to facilitate future inventories and shipping actions. The two-dimensional barcodes can store much more data than other types of barcodes currently in use.

The second step in the conversion process was reconfiguring more than 6,000 pallets of munitions to build light pallets for the SCLs. A variety of munitions had to be reconfigured, including A131 (7.62-millimeter ball and tracer linked), A540 (.50 caliber armor piercing, incendiary, and tracer linked), G815/G826 (screening smoke for armored vehicles), propellant, and a variety of fuzes for artillery. Only one light pallet design was constructed for each type of munition to limit the inventory and handling process. To avoid wasting munitions, a packaging design for 200 primers had to be developed, tested, and approved for 155-millimeter artillery SCLs.

The third step was calling forward railcars that contained the right types of munitions for specific SCLs and BKLs. Materiel from one LASH vessel had been stored in more than 350 railcars. The materiel was transferred from the railcars as needed to build specific container loads at two building sites at MOTSU. The SCL building process was led by quality assurance specialists (ammunition surveillance) (QASAS) from AMCOM, OSC installations, and the Army Corps of Engineers. QASAS interns from DAC participated as part of their on-the-job training.

Multiple-launch rocket systems were loaded on flatracks on the wharf during each LASH vessel download sequence so AMCOM personnel could perform a 100-percent visual inspection. Each time, it required about 3 weeks to build approximately 475 M1 flatrack loads.

After the containers were loaded, joint total asset visibility-formatted information about their contents was input to radio frequency identification tags. SAVI Technology personnel, under contract to OSC, loaded the data onto the tags and attached them to the containers to provide in-transit visibility and to facilitate accountability in a contingency.

The final 2,500 TEUs were completed in July 2001. On 14 July, during the *MV Carter* upload period, but not during actual operations, a fire broke out in the vessel's engine room. No munitions were involved in the fire, although 1,212 containers were on board at the time. The *M V Carter* underwent repairs from August 2001 through January 2002, delaying the completion of the upload until February 2002.

The entire conversion project was completed on time and within budget. The efficiency of SCLs provided more space, so it was possible to store more munitions on the two containerships than had been stored on the three LASH vessels. The *MV Carter* joined the *MV Page* in storing the converted APS–3 munitions, providing the warfighter additional flexibility in projecting power in support of any contingency. **ALOG**

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Deploying a Heavy Task Force by Air

by Captain Joshua S. Vogel

A deployment of Task Force Blackjack to Kuwait allowed the 1st Cavalry division to test movement by air rather than by rail and sea.

Vehicles staged at the deployment readiness reaction field (DRRF) in preparation for rail movement is a common sight at Fort Hood, Texas. Last November, the DRRF appeared the same to passersby: vehicles were lining up for yet another deployment. However, it was clear to the trained eye that the vehicles were being prepared for air rather than rail deployment. At the first station of the DRRF, vehicles were stopped, weighed, and marked. They then were separated for a detailed maintenance inspection and an inspection of their loads to ensure they were tied down correctly.

This unprecedented air deployment of a 1st Cavalry Division group, known as Task Force Blackjack, to Kuwait called for facility upgrades, procedural changes, and redundant preparations to ensure success.

Past Deployments

Over the past 12 years, 1st Cavalry Division deployments have ranged from a full-scale war deployment in support of Operation Desert Storm to peacekeeping operations in Bosnia. During Operation Desert Storm, the division deployed all equipment by rail from Fort Hood to the port of Beaumont, Texas, where it was loaded on ships for transport to the area of operations. When the ships arrived at the port of debarkation, the division's personnel, who had traveled to the area by air, helped download the vessels and then moved the equipment to the tactical assembly area. The division deployment to Bosnia was similar to the Operation Desert Storm deployment, except that the equipment was downloaded at the port of Rijeka, Croatia, and then moved by rail to Tuzla, Bosnia.

Facility Upgrades

Current III Corps and 1st Cavalry Division deployment regulations are based on deploying unit equipment by train and ship. Upgrades of older facilities and construction of new facilities to increase Fort Hood's capabilities as a strategic deployment platform also support that scenario. These upgrades include paving the DRRF staging area, adding a building to the staging area for Transportation Coordinator Automated Command and Control Information System (TC ACCIS) terminals, and constructing a new railhead near the installation Directorate of Logistics warehouse. Fort Hood also is expanding Robert Gray Army Airfield to a joint-use airport with increased aircraft staging areas. When completed, these initiatives will support deployment of a large amount of equipment by rail and a large number of personnel by air.

Changes in Procedures

After the 11 September terrorist attacks, Fort Hood was alerted to stand by to deploy the continental United States contingency response force (CCRF). At the time, the CCRF mission was assigned to the 1st Cavalry Division. The CCRF consisted of a brigade combat team (BCT) with heavy aviation units and the division tactical and assault command post. According to higher headquarters' guidance, the CCRF would deploy entirely by air, with the rest of the division to follow if needed. The CCRF's signal and support companies would deploy most of their equipment; its infantry and armor companies would draw Army pre-positioned stocks (APS).

Deploying by air is labor intensive because preparing the equipment for air shipment takes longer and requires more assets than preparing it for shipment by other modes. To deploy the CCRF, the division needed a viable plan for conducting successful joint inspection of equipment to be deployed. DOL deployment operations, III Corps, the 13th Corps Support Command, and the 1st Cavalry Division established a working group to

□ **Vehicles line up after unloading from the airplane in Kuwait.**

develop a plan. Key planners in the 1st Cavalry Division were the division transportation officer, G3 planners, division artillery (the pusher unit) S3, and the 4-5th Air Defense Artillery Battalion (the DRRF pusher unit) S3 [A pusher unit is a nondeploying unit assigned to help a unit prepare for deployment.]

The working group needed to identify the following—

• How much air traffic Robert Gray Army Airfield could support.

• Which Fort Hood areas would be used to prepare the equipment.

• How the equipment would move through the different stages and arrive at the airfield.

• How to track the status of each chalk. [A chalk is a group of equipment identified for transport as a single aircraft load.]

• How the pallets, vehicles, and passengers would be prepared, inspected, manifested, and loaded onto the Air Force planes without delaying their departures.

With Robert Gray Army Airfield still under renovation, only three parking spaces for wide-body aircraft were available. Although that appeared to be too little capacity, it was estimated that, with an Air Force crew to help load the planes, the airfield could sustain a flow of 20 or more C–5 Galaxy transports a day.

The plan called for the DRRF to be the main staging area for both vehicles and pallets before they were moved to the airfield. At the staging area, vehicles would be inspected, pallets would be inspected to ensure that they were tied down to meet joint inspection standards, and all hazardous materials paperwork and markings would be completed. Load plans would be updated with the actual weights and dimensions of the vehicles and pallets to be moved. Equipment would be called forward from the DRRF to the north ramp of the airfield, where it would be reinspected before the joint inspection with the Air Force began.

Additional Automated Movement Flow Tracking (AMFT) computers would be set up at all nodes. AMFT would provide real-time status of each chalk from the time it arrived at the DRRF until it departed from Robert Gray Army Airfield. For passenger manifesting, physical fitness centers across the installation were identified as primary and alternate sites for conducting bag-drop and manifesting operations before loading the planes.

After the plan was complete, each major subordinate command participated in a rock drill that provided an orientation of the process.

To maintain the battle rhythm during a possible deployment, III Corps established a joint movements board, which met daily. The board was chaired by the G3 current operations chief and attended by the corps transportation officer, the Robert Gray Army Airfield officer in charge, the DOL director of deployment operations, and transportation officers from the deploying units. At this meeting, chalks would be called forward based on the validated air traffic and movement issues would be solved with all involved organizations.

Preparation for Deployment

The 3d Brigade was notified that it would deploy to the National Training Center (NTC) at Fort Irwin, California, for training. The 2d BCT would take over the CCRF mission for the division while the 3d Brigade was at the NTC. While the division was preparing to move one BCT to the NTC and readying another BCT for potential deployment in support of a CCRF contingency, III Corps issued an order to part of the 2d BCT's CCRF to be prepared to deploy to Kuwait in support of Operation Desert Spring.

The first hurdle for the deploying CCRF for Task Force Blackjack was the development of a task organization. The challenge was to identify unit requirements based on the mission and then compare those requirements to the equipment available from the APS–5 site at Camp Doha, Kuwait. The division had both Force XXI and Army of Excellence (AOE) units deploying; however, APS–5 was transitioning between the two types of organizations at the time. Fortunately, there was still enough AOE equipment on the ground to provide the number of systems the AOE unit needed.

Other specialized support units identified under the task organization, including the signal company and the military intelligence company supporting the brigade, would not be able to draw equipment from APS and therefore would deploy much more equipment. The units that could draw equipment from APS–5 palletized items such as Single-Channel Ground and Airborne Radio System (SINCGARS) radios and combat vehicle system (CVS) helmets for later installation in the equipment they would draw.

The Deployment Process

Once it was determined which units would draw APS and which would not, the unit movement officers completed their deployment equipment lists. These lists then were input to the Automated Air Load Planning System (AALPS) at the Division Transportation Office to create air load plans. The load plans identified a requirement for 19 C–5 Galaxy transports to deploy the equipment and 5 commercial wide-body airplanes to carry personnel. Based on this requirement, the joint movements board established a call-forward schedule for vehicles and equipment to process through the DRRF to the arrival/departure airfield control group for the final joint inspection and deployment staging. So they would be ready when the Air Force arrived, the brigade began preparing before the air traffic schedule had been identified.

To test the new system, the call-forward plan was designed to begin slowly and increase the workload each day until the job was complete. Only two chalks, consisting primarily of vehicles, were processed during the first 2 days. On arrival at the DRRF, each vehicle was weighed and marked to reflect its center of balance. Once all vehicles were weighed and marked, the entire chalk was staged in the DRRF. Inspectors then conducted simultaneous maintenance, secondary load, and hazardous materials inspections. Vehicles needing maintenance were moved to the north side of the DRRF, where an on-site maintenance contact team fixed deficiencies. If the team estimated that a vehicle could not be fixed in time, the deploying unit was given the opportunity to substitute a similar vehicle. After the vehicles passed all the checks at the DRRF, they were staged at the western end of the area until they were called forward to the airfield.

The process for preparing 463L pallets was markedly different. To keep from having to move their equipment all over post, units built pallets in their motor pools. Once a pallet was loaded, the division support command (DISCOM) picked it up and moved it. The DISCOM staged flatbeds in unit motor pools and at the DRRF in advance and traveled between these areas and the airfield all day. For baggage pallets and bulk chemical defense equipment, a consolidated site was provided for units to drop off their equipment. Details then built the pallets, moved them directly to the airfield, and joined the pallets with their chalks.

At the airfield, chalks were inspected using the same procedures as those conducted at the DRRF. This provided the redundancy needed to ensure that the chalks passed the joint inspection required by the Air Force.

Knowledgeable unit movement officers and hazardous materials certifiers escorted the equipment through the whole process so that they could make corrections within minutes if problems were found. This process proved successful in passing the Air Force joint inspection. Once the equipment had passed all inspections, it was staged on the ready line to be loaded about 6 hours before departure.

Once all equipment was ready, the last step was to prepare personnel and their accompanying baggage. Deploying personnel were required to arrive with their baggage at a designated site 6 hours before departure to be manifested for their flight. During this time, they checked their bags and received last-minute briefings. Forklifts and baggage trucks were staged at the manifest site to handle the soldiers' bags and move them to the airfield. Soldiers then were moved by bus to the airfield and loaded on their planes.

Planning, hard work, and flexibility made the deployment of Task Force Blackjack an all-around success. Within a month of receiving the notice to deploy, the task force arrived in the Kuwaiti desert fully ready for any contingency. This deployment proved that even heavy forces must be ready to deploy by air. It also demonstrated the need for planners to include a draw from APS as a course of action. The successful deployment of Task Force Blackjack validated the ability of heavy forces to be ready to deploy by air to an area of operations on short notice. **ALOG**

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Commentary

Strategic Mobility: The U.S. Military's Weakest Link

by Major Kenneth E. Hickins

One of the problems facing the U.S. military is its inability to project land power into a crisis area at the speed and tempo required. The author believes that high-speed sealift could help solve this problem.

The collapse of the Soviet Union in 1991 presented a new set of less distinct yet more complex challenges to the regional unified commanders. One of those challenges is the increased likelihood that the United States will be drawn into sudden regional wars. According to the National Defense Council Federation, the top 10 potential conflict areas likely to involve the United States are Afghanistan, Burundi, Comoros, Congo, Iraq, Myanmar, Pakistan, Sierra Leone, Somalia, and Sudan.

Years of budget constraints, force downsizing, and the steady withdrawal of U.S. forces from overseas bases have eroded the options available to the President, the Secretary of Defense, and unified commanders to meet challenges to U.S. security effectively. After glancing at a map, the question that leaps out is, "How can power be projected into these potential conflict areas in a timely manner?" High-speed sealift, a technology available commercially today, could help solve this strategic mobility dilemma.

Strategic Mobility Shortfall

A major problem facing the United States is its inability to project land power into or within a theater of operations at the speed and tempo required. This strategic transport problem limits a combatant commander's ability to deter conflict, respond with enough land power to prevent escalation of a crisis, or defeat opponents quickly and decisively if required. It limits the Army's ability to get into a fight and sustain it. The relevance of the Army hinges on strategic airlift and sealift. High-speed sealift puts a powerful tool back into the combatant commander's toolbox, vastly enhancing his ability to resolve a crisis. In short, high-speed sealift will fill the gap in strategic deployment capability that currently limits the joint force from reaching its full potential to deter and defeat future opponents.

Power Projection Catch 22

The 2000 Army Science Board study, "Technical and Tactical Opportunities for Revolutionary Advances in Rapidly Deployable Joint Ground Forces in the 2015-2025 Era," found that a highly lethal and survivable force incapable of rapid deployment is not relevant in a power-projection Army. Conversely, a highly deployable light force with limited lethality and survivability is not likely to deter a determined foe.

Rapid projection of joint forces and their continued sustainment are the critical capabilities underpinning the ability of U.S. forces to respond effectively around the globe. During the most recent conflicts involving U.S. forces, moving forces and supplies into and around the theater quickly was a major problem.

Throughout the Kosovo peacekeeping operation, U.S. forces encountered problems with deploying ships to the Balkans quickly. During Operation Desert Shield, 82d Airborne Division troops from Fort Bragg, North Carolina, were deployed rapidly but with so little firepower that they were referred to jokingly as a "speed bump." And in Somalia, ships loaded with equipment were unable to offload because no ports in the area could accommodate them. Thus, operations were delayed.

Since the end of the Cold War, the centerpiece of the

U.S. defense strategy has been power projection. Power projection is the ability to deploy U.S. forces rapidly and effectively and sustain them from multiple, dispersed locations. By complementing overseas presence, power projection strives for unconstrained global reach. Global power projection provides national leaders with options they must have to mitigate potential crises.

In October 1999, Army Chief of Staff General Eric K. Shinseki announced his vision of a future in which the Army would field lighter, more lethal, less logistically demanding, and more deployable forces than the current Army of Excellence. The bad news is that, no matter how much the U.S. military is transformed to become lighter, more lethal, and more agile, its forces still cannot be deployed to most of the projected hot spots in the world in a timely manner.

The current Defense transportation system cannot support the Army's strategic mobility requirement to be able to move a medium brigade anywhere in the world in 96 hours, a division in 120 hours, and five divisions in 30 days, which limits the options available to the unified commanders. Each leg of the strategic mobility triad (airlift, sealift, and pre-positioning) depends on the other, but each has inherent weaknesses.

Airlift

Strategic airlift is a combination of military and commercial aircraft. The military airlift fleet consists of approximately 700 troop and cargo carriers, including 90 C–17 Globemaster IIIs and 88 C–141 Starlifters (which are being replaced by Globemasters with an ultimate goal of 222) and 418 C–130 Hercules transporters. The airlift fleet also includes 104 C–5 Galaxies, which, because of maintenance problems, have only a 60-percent readiness rate.

In addition to a chronic shortage of transport aircraft, many other factors, such as maintenance posture, airfield throughput capability, and level of airfield modernization, further exacerbate the strategic airlift problem facing the U.S. military. The chances of having world-class airfields are remote in many parts of the world. While it is true that C–17s can land on airfields that are well below optimal standards, the unloading capabilities of those airfields must be examined closely. For example, the Army's Stryker brigade combat team (SBCT), which is designed to be lighter and more agile than current heavy forces, could be used by a combatant commander in a number of ways. It could be deployed as a deterrent or for defensive or offensive operations.

According to the Army Training and Doctrine Command table of organization and equipment for an SBCT, the deployment footprint for this unit is approximately 13,948 short tons. If the travel time to the aerial port of debarkation was 12 hours, and aircraft from U.S. airlines were contractually committed to move all of the soldiers, it would take 2 days and 58 C–17s and 62 C–5s (based on their 60-percent readiness rate) to move all of the SBCT's equipment. The space needed to contain the SBCT's equipment at the aerial port of debarkation would be immense. More importantly, intense competition for available airlift during a crisis would limit the Army's ability to build land power within the theater and limit a combatant commander's ability to deter, contain, or quickly and decisively resolve a regional conflict.

Sealift

The second leg of the strategic mobility triad is sealift. Strategic sealift includes many types of ships, but the three major types of vessels are containerships; large, medium-speed, roll-on-roll-off (LMSR) vessels; and tankers. Sealift capability comes from three sources: Government-owned ships, commercial ships under long-term charter to the Department of Defense, and ships operating in commercial trade.

According to Research Memorandum 91–109 from the Center for Naval Analysis, a lesson learned from the Gulf War and Kosovo is that some ships cannot meet required timelines. During the Gulf War, eight fast sealift ships were tasked to respond on C-day and C+1. One ship was 1 day late, another was 3 days late, and a third was in overhaul and responded 9 days late. En route, the fast sealift ship that was pulled out of overhaul early suffered a series of boiler problems and was diverted to Rota, Spain, for repairs. The first wave of the fast sealift ships averaged only 23 knots, well below their advertised maximum speed of 33 knots, thus adding 5 days to the transit time. This problem only worsened as the activation proceeded. Of the 71 Ready Reserve Force ships used, only 18 deployed on time.

Pre-positioning

The final leg of the strategic mobility triad is pre-positioning. Pre-positioning refers to the afloat pre-positioning forces (APF) and land-based pre-positioned equipment. All ships in the APF have an organic cargo-handling capability that enables them to discharge their cargo at austere port facilities.

The APF has three distinct divisions: the Logistics Pre-positioning Force, the Maritime Pre-positioning Force, and the Combat Pre-positioning Force. According to retired Army Colonel Kenneth Allard in his 1995 book, *Somalia Operations: Lessons Learned*, some APF ships are unable to discharge their cargoes at austere ports because of their draft (the depth of a vessel's keel below the water line). During the initial stages of Operation Restore Hope in Somalia, three pre-positioned ships were not able to unload their cargoes because their draft prevented them from entering the harbor at Mogadishu. Even though all three had the capacity to offload "in the stream," rough seas made such an offload impossible. After 2 weeks of trying to find suitable ports, two of the ships returned to Diego Garcia without discharging their cargoes.

The advantage provided by the size of these ships is also a disadvantage because the choice of ports is limited. The amount of equipment these ships carry also must be taken into account. The space necessary for reception, staging, onward movement, and integration (RSO&I) equipment is immense.

The land-based pre-positioned force is made up primarily of Army equipment, but the Marine Corps and the Air Force also have equipment pre-positioned on land. Land-based pre-positioning stocks are maintained in Europe, Southwest Asia, Korea, and the Pacific region. It is difficult and time-consuming to move them to other geographic locations. For example, during the Kosovo peacekeeping operation, the United States deployed two logistics support vessels (LSVs) to transport heavy equipment between the Balkans and Italy. It took 23 days to move the LSVs from the continental United States to the equipment site in Italy.

Although each leg of the mobility triad has strengths that complement the others, weaknesses remain. While airlift can get there the fastest, it has finite resources; sealift's success is related directly to speed and port access; and pre-positioned equipment is dependent on sealift to get it to the fight.

High-Speed Sealift

High-speed sealift is a force multiplier that provides combatant commanders with multiple options early in a conflict. The high-speed, wave-piercing catamaran, a type of SWATH [small waterplane area twin hull] vessel, already has proven itself in commercial and military applications.

The *Joint Venture HSV–X1* high-speed vessel (HSV) is a wave-piercing catamaran fitted with a landing pad for SH–60 Seahawk or CH–46 Sea Knight helicopters. It has a launch-and-recovery system for rigid inflatable boats up to 39 feet long and vehicle ramps that can accommodate heavy tracked vehicles. It is 315 feet long and has a two-part, hydraulically operated vehicle ramp that allows rapid loading, unloading, and discharge of vehicles from the stern or alongside. The vessel is highly maneuverable and can make a 90-degree turn at full speed and stop in three ship lengths. Powered by four Caterpillar 3618 marine diesel engines, it can transport 325 troops and 545 tons of equipment. A sample load configuration might include 209 soldiers with gear, 17 light armored vehicles (LAVs), 2 family of medium tactical vehicles trucks, and 2 high-mobility, multipurpose, wheeled vehicles (HMMWVs). Another might include 108 soldiers, 14 M2A3 Bradley fighting vehicles, and 4 HMMWVs. The ship can carry these loads while traveling at 35 knots. The *Joint Venture HSV-X1* is leased to the U.S. military and is used by U.S. Central Command to assist in the U.S.-led war on terrorism in its 25-nation area of responsibility that includes Afghanistan.

❑ **The *Joint Venture HSV–X1* is leased to U.S. forces and plays a logistics role in the U.S.-led war on terrorism in the U.S. Central Command's area of responsibility.**

A smaller version of the HSV, the 282-foot Incat 045, renamed the *HMAS* [*Her Majesty's Australian Ship*] *Jervis Bay*, was chartered by the Royal Australian Navy for 2 years for logistics operations between Australia and East Timor. It completed 107 trips during that time, logging more than 100,000 nautical miles. Most of the *Jervis Bay* transits were across the 430-nautical-mile passage between Darwin, Australia, and Dili, East Timor, and typically were completed in less than 11 hours. The vehicle averaged 2 or 3 round trips per week at 43 knots while carrying 550 tons of troops, vehicles, and supplies each trip. It would have taken 14 to 17 military aircraft, spread over a 4- to 7-day period, to transport the same cargo.

The Voyage Ahead

According to military sources cited in Marc Strass' 20 November 2000 article in *Defense Daily*, the "Army

Wants 14 High-Speed Catamarans to Speed Intra-Theater Lift." The proposed theater support vessel (TSV) would be approximately 394 feet long and equipped with engines that could transport 1,250 short tons in 25,000 to 30,000 square feet of deck space. It would have a sustained speed of at least 40 knots and be able to survive sea states of more than 5 feet. The TSV would have a range of 7,000 nautical miles unloaded and 1,000 nautical miles loaded. Two TSVs would be able to carry an SBCT battalion of troops with accompanying LAVs; seven TSVs could transport an entire SBCT. The TSV is expected to cost between $65 and $85 million each compared to the 1995 price tag of $309 million for an LMSR.

Use of the TSV would permit simultaneous deployment or employment of ground forces. It would take the burden off strategic airlift as the only means to move troops and equipment quickly. Fully loaded, the TSV's draft would be only 12 feet, which would allow a combatant commander to use significantly more ports within his area of responsibility. A TSV fleet, coupled with joint logistics-over-the-shore capabilities, would give a combatant commander an unprecedented ability to project land power ashore, bypassing ports altogether if necessary. Then the combatant commander could conduct operational maneuver and converging operations, compel an enemy to fight in multiple directions, and much more. Success in such operations still would depend, of course, on secure air and sea lines of communication, both inside and outside the joint operational area, and protection from air, surface, and subsurface threats.

At the operational level of warfare, the value of the TSV technology would magnify itself. If the military had enough TSVs to position them at ports near the future medium brigade combat teams and within the unified commands, RSO&I time could be cut significantly. Within 4 to 6 days of a deployment order, a combatant commander could provide a substantial amount of land power not only to special forces, rangers, and light infantry, but also to a hard-hitting mobile force of medium brigade combat teams that could arrive ready to fight. These high-speed vessels also would help reduce the need to transport soldiers and their equipment separately and cut the time required to offload or draw equipment from pre-positioned stocks. Brigades would arrive intact, having conducted planning and map rehearsals en route, with their equipment fully fueled, uploaded with ammunition, and ready to roll.

This deployment concept has limitations, however. Certain preconditions would have to exist to ensure the safe transport of Army forces aboard TSVs. A temporary joint task force or an existing maritime component command would have to be formed to manage the deployments. The burden of security for the TSVs while en route clearly would fall on the Navy, augmented by the Air Force and Army Special Operations Forces. This would be even more challenging because TSVs would be able to cruise at twice the speed of existing Navy surface vessels. Secure sea lanes of communication from the seaport of embarkation to the seaport of debarkation would have to be guaranteed. Protection from air, surface, and subsurface threats would have to be provided, including mine clearing, particularly at strategic chokepoints, port approaches, and in the vicinity of coastal landing sites. Rendezvous and refueling of TSVs at sea also would be required. The ports or landing sites would have to be secured and cleared before disembarking the brigades, a process that is similar to the critical tasks associated with Marine Corps amphibious operations.

Sixty percent of the world's politically significant urban areas are located within 25 miles of a coastline; 75 percent are located within 150 miles. The cost of procuring enough C–17s to provide adequate airlift to these areas is prohibitive. (In fiscal year 1998, a C–17 cost $236.7 million.) The TSV will cost roughly one-third as much as a C–17 and have a cargo-carrying capacity 12 times greater. The bottom line is that the United States currently cannot move significant ground forces to a crisis area in a timely manner without resorting to technology such as high-speed sealift.

The United States continues to be the world's sole superpower and the world's paramount source of political, economic, information, and military leadership. As such, it must be able to project forces quickly into trouble spots around the world without the restrictions of limited air transport and slow sealift. Therefore, the U.S. military must leverage available technology and invest in high-speed sealift. High-speed sealift, combined with airlift, conventional sealift, and prepositioning, has the potential to create a synergistic effect and can be the key to operational and strategic success.

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Information Management in the Brigade Rear Command Post

by Lieutenant Colonel Jeffrey S. Wilson
and Major Michael W. Snow

Information is the nucleus of battle command. Without timely and accurate information on the status of combat service support (CSS), commanders cannot make sound decisions on proposed courses of action before, during, and after the battle. At the brigade combat team level, it falls to the brigade rear command post to collect, display, analyze, and relay critical CSS information. The lack of coherent, effective CSS information systems can hamper the efforts of key brigade logistics planners and executors to get CSS assets to the decisive point at the critical time to ensure success. Key logistics planners include the forward support battalion (FSB) commander, the FSB support operations officer (SPO), the brigade S1 (adjutant), and the brigade S4 (logistics officer).

Based on our combined experience as logistics observer-controllers at the National Training Center (NTC) at Fort Irwin, California, we offer some thoughts about CSS information management that logisticians will find useful in NTC rotations and in actual deployments.

The Brigade Rear Command Post

Field Manual (FM) 3–90.3, The Mounted Brigade Combat Team, describes the brigade rear command post as the node that "controls and coordinates the sustainment operations for the brigade." The manual states that "the rear command post collocates with the FSB command post in the BSA," implying that the FSB command post and the brigade rear command post are adjacent but not interconnected entities. In fact, the FSB command post is part of the brigade rear command post, with the FSB commander having the charter to manage the brigade rear battle. Failure to see the brigade administrative and logistics operations center (ALOC) and the FSB tactical operations center (TOC) as one entity is the root of most of the communication and coordination problems in managing CSS information. It is easy to see that the extent to which the brigade rear command post can fulfill its doctrinal functions depends on how well it can receive and distribute information.

Continuously Tracked Information

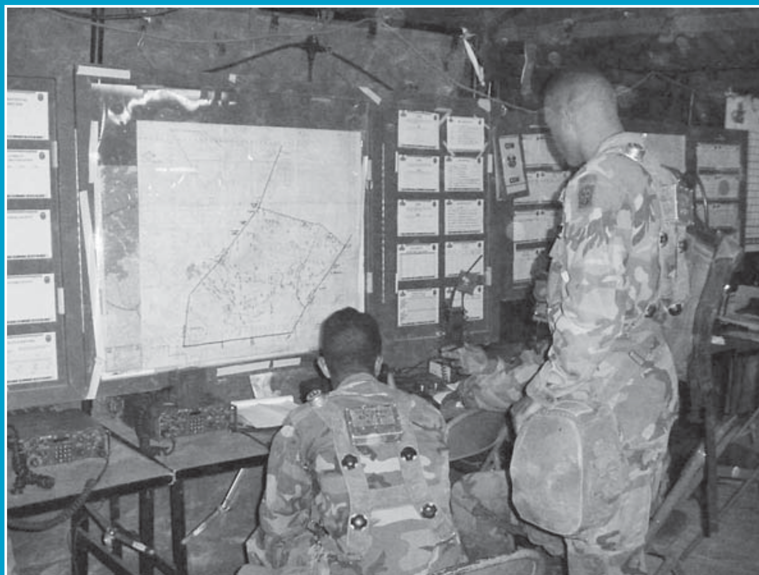
As a rule, the only CSS information in which the brigade commander has a personal interest during the fight is the combat power (available vehicles versus required vehicles) of his main killing systems (M1 Abrams tanks, M2 Bradley fighting vehicles, M109 howitzers, and aircraft). Unit tactics, techniques, and procedures (TTP) vary, but most units send combat power updates to the brigade tactical operations center and tactical command post (TOC/TAC) over the command net as systems are lost. The TOC/TAC also receives updates from the brigade S4 in the ALOC.

At the FSB TOC, the FSB commander requires the support operations section to track maintenance, supply, and medical information continuously. However, during a battle, the support operations section rarely is successful in tracking anything except the maneuver units' combat power. Even maneuver unit combat power is hard to track when communication plans are poor and TTPs do not exist for the brigade administrative and logistics net. Typically, members of the support operations section obtain data on the supported units from maneuver unit command and administrative and logistics nets.

In the FSB TOC, combat power during the fight usually is discussed in aggregate terms, not in terms of specific vehicles by bumper number. Only rarely does a brigade S4 have adequate communications and TTP in place to track combat power in bumper-number detail, although the brigade ALOC should be able to do so routinely.

Most FSB support operations sections delegate casualty evacuation tracking to the medical company commander. Although the brigade S1 usually monitors the medical company net to obtain and post information, the adjutant usually is not involved firsthand. Only a few S1s collocate with the medical company commander on the battlefield and personally track casualty evacuation.

As the brigade commander's principal logistics staff officer, the brigade S4 collects precise combat power information, which he shares with the TOC/TAC and the FSB commander. The brigade and task force S4s work together to collect information on the status of combat power and critical classes of supply. The FSB



☐ **Soldiers work in front of a common display architecture for critical information in an FSB TOC. Note the wingboards containing status charts surrounding the map.**

support operations section tracks the status of supply point receipts and issues and corrects shortages through the materiel management center and the main support battalion or corps support battalion. The brigade S1, S4, and SPO should meet routinely to ensure that critical information is passed among shops—especially if the FSB commander is not conducting regular battle update briefs—but they rarely do so.

Most FSB TOCs have tracking mechanisms for maintaining visibility of key communications nodes, Standard Army Retail Supply System (SARSS) blocked asynchronous transmission (BLAST) status, and the enemy threat to the brigade support area (BSA). Subordinate units routinely update information on the wing board (a hinged side panel mounted to the map board in the TOC). Most provide supply status updates twice daily or when a status changes significantly. Most brigade and FSB commander's critical information requirements (CCIR) call for subordinates to maintain visibility of SARSS and to be able to transfer information using a file transfer protocol or a BLAST protocol over mobile subscriber equipment. The FSB TOC rarely has a SARSS status chart. However, most maintenance and supply company command posts understand the need to report not-mission-capable SARSS data and their inability to transfer data to the commander via mobile subscriber equipment. Interestingly, logistics CCIR rarely are nested from brigade to battalion, and, except for combat power, CCIR seldom are tracked at the brigade TOC.

Information Often Overlooked

A critical piece of information that most brigade TOC/TAC staffs overlook is the status of the main supply routes (MSRs). Most units post MSRs to operational graphics; however, few have standing operating procedures (SOPs) for MSR status reporting. Although the beginning location of the brigade rear command post is usually on the operational graphics, the brigade TOC/TAC seldom tracks BSA moves as closely as it should.

In the FSB, the support operations section should track and display the status of water; bulk petroleum, oils, and lubricants; ammunition; medical operations; and maintenance. The section should continue routine reporting procedures during the fight. Most SPOs establish and maintain good systems for gathering vital supply status information from key nodes at least once each day and when significant changes to on-hand balances occur (issues or receipts). Problems arise because most FSBs allow these regular reports to slip during combat operations.

Support operations sections also should track the status of supplies, medical operations, and maintenance across the brigade combat team. Information displayed in the support operations section should provide leaders with the overall status and highlight specific units with critical shortages that might prevent them from accomplishing their missions.

Irregularly Tracked Information

The brigade TOC/TAC tracks bulk petroleum, oils, and lubricants and ammunition only if particular units are having problems. This tracking usually is accomplished with verbal reports over the radio.

During combat operations, FSB commanders generally focus the efforts of the support operations section on battle tracking combat power and monitoring casualty evacuation. However, most SPOs understand that they must continue routine operations such as reviewing daily requirements, receiving reports, and coordinating with the materiel management center for required pushes. During the fight, SPOs and brigade S4s will process requests together for critically short items such as ammunition, subsistence, or water.

If a class IV (construction and barrier materials) shipment for an upcoming defense mission is moving forward from the division support area during offensive operations, the support operations section normally will track it closely and perhaps even link it up with maneuver units during the offensive. The brigade S4 usually is involved personally in this process.

If a critical class IX (repair parts) shipment is moving forward by way of emergency ground or air transport during combat operations, the support operations section will monitor the movement to ensure that the parts reach the not-mission-capable systems.

Although most units come to the NTC with air assets that they could use for "logbird" operations, very few FSBs have an SOP for logbird intelligence and status reporting. In almost every rotation, lack of closed-loop reporting systems within the FSB results in parts being delivered via air to the wrong locations or to the FSB and then allowed to sit at the warehouse. For air assets to reduce repair time, the FSB support operations section must track each shipment until its delivery to the not-mission-capable system.

Updating Information

Most units are challenged to establish and maintain TTPs that address the routine updating of required information. As a result, once the battle begins, information updating is sporadic or nonexistent. In the brigade rear command post, most SPOs understand that they should receive information when a battle loss occurs or when the status of critical supplies drops below certain levels. Most SPOs also will tell you that, because of the fog of war, poor communications, and the fact that most subordinate units are bad at pushing information higher, they are continually challenged to gain and maintain tactical situational awareness during the fight. Ideally, tactical information should be updated as status changes, with routine supply stock status updated at intervals established by the unit.

One technique that works well at the NTC is to conduct regular battle update briefs in the FSB TOC during the fight. Beginning as units cross the line of departure, the FSB commander gathers around the central map in the FSB S3 section with his S2, S3, executive officer, and SPO and the brigade S4 and S1 from the ALOC. Each briefs the enemy situation, friendly situation, key ongoing logistics activities, combat power, and casualty information. This regular forum provides the entire brigade rear command post a common operating picture and allows for routine updates to the TOC/TAC.

Display Methodology

To track key information, most brigade TOC/TACs, brigade rear command posts, and FSB TOCs have standard sets of wing-board slides. Most staffs post and update hard copies of PowerPoint slides, filing the hard copies for reference. Rarely do units use automated spreadsheets and laptop or desktop computers to track, display, and manage supply operations. Occasionally, a SPO teaches his people to use an Excel spreadsheet format that will allow continuous updating. Even units that have an automated status tracker usually display the information in grease pencil on the wall rather than use the computer screen as the display. The tactical local area network is of marginal value in most rotations because of technical problems or because the staff does not routinely post critical information there.

Both digitized brigades and brigade combat teams that are not fully digitized have brought the CSS Control System (CSSCS) to the NTC and attempted to use it as a management tool. However, because of significant challenges in training, data transfer, and connectivity, the units that bring the CSSCS usually revert to manual tracking systems by mid-rotation. Whether the brigade combat team is fully digitized or not, the lack of sustained manager- and operator-level training on CSSCS at the home station prevents units from making maximum use of this system.

The FSB commander, FSB SPO, brigade S1, and brigade S4 all share responsibility for establishing and maintaining efficient and effective systems for collecting, displaying, analyzing, and disseminating CSS information. Failure to do so can mean the difference between success and failure on the fast-moving battlefields of the 21st century. **ALOG**

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Major Michael W. Snow is an observer-controller at the National Training Center at Fort Irwin, California. He has a master's degree in logistics management from the Florida Institute of Technology and is a graduate of the Ordnance Officer Basic and Advanced Courses, the Army Logistics Management College's Logistics Executive Development Course, and the Army Command and General Staff College.

Chemical Warfare Service in the Southwest Pacific During World War II

by Dr. Burton Wright III

The goal of the Army's Chemical Warfare Service (CWS) in the Pacific during World War II was to provide Southwest Pacific Area (SWPA) forces, which were commanded by General Douglas McArthur, with the capability to conduct chemical warfare if needed. The CWS had to meet substantial challenges before it could accomplish that goal.

The CWS set up shop in Australia—the SWPA logistics hub for most of the war—to supply chemical warfare needs. However, in mid-1942, the 3d Chemical Laboratory Company, then the sole CWS unit in the Pacific theater, had almost no chemical equipment or chemicals. Thus, the CWS in Australia lacked what it needed to support chemical operations.

Some relief, but not enough, occurred when the Army established a general depot for materials left behind by Army divisions passing through Australia on their way to the front. Although the stockpiles obtained from these units seemed more than adequate at first, planners in the United States were developing a logistics strategy to ensure that adequate supplies would reach every corner of the far Pacific. This high-level planning culminated in February 1942 with a document on an overall supply system for Australia. It called for stockpiling 90 days' worth of supplies of all classes, to include ground ammunition.

The Adjutant General directed the Army's technical services, which included the CWS, to complete a level-of-supply study and set up a system that provided for shipment of materiel to Australia. In other words, they had to determine the number of soldiers the supply system would need and the methods they would use to get supplies to the depot in Australia.

The Office of the Chief of the Chemical Warfare Service used this study to determine the correct quantity of chemicals to send to Australia. Mustard was the only chemical retaliatory agent available for shipment, and it had to be shipped in heavy bulk containers. Only 870 of the 1,000 tons of mustard agent requested were sent to Australia because shipping space was limited.

The SWPA CWS asked for supplies in excess of allowances in order to overstock supplies and ensure that they would be available when needed. This was because troops are far simpler to ship than bulk cargo; to adequately support large infusions of men, it was necessary to make sure that bulk supplies were on hand before the troops arrived.

Once the mustard agent arrived, it had to be processed and put into mines, spray tanks, and bombs. This procedure required a special facility. Colonel William Copthorne, one of the senior CWS officers in Australia, wrote to the Department of the Army and requested that an entire plant be shipped from the United States. The plant arrived dismantled and without any diagrams showing how to reassemble it. The Americans had to use guesswork to assemble the plant, but they succeeded. The plant eventually filled 14,000 bomb casings that, though intended for the Philippines, stayed in Australia after the Philippines fell to the Japanese.

Landmines were in short supply. The Army had the landmines manufactured locally and shipped unfilled to the CWS. CWS then added the chemical agent so the mines could be stored for later use.

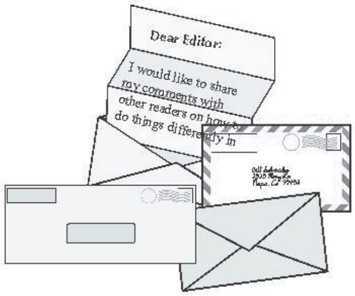
Even though the M10 spray tanks used with aircraft were shipped to Australia without accessories or filling instructions, the CWS plant managed to fill enough spray tanks to supply a 63-plane raid.

Artillery shells took a bit longer to produce. Although the mustard agent and the filler plant were available, shell casings were not. They had to be shipped in scarce transport space. Luckily, the lack of artillery shells was not significant. Only one piece of equipment capable of firing artillery shells had been shipped to the front since the nature of combat in the jungles at that time did not allow for use of heavy artillery.

By March 1943, a gas warfare plan was in place in case the Japanese used chemicals. This plan called for toxic agents to be dispersed in six different locations. If the President authorized the use of chemicals, U.S. forces could respond immediately.

By late 1943, General MacArthur had the capability to use chemical weapons offensively. It took time, but the CWS accomplished its goal even though the Pacific was not the Army's highest priority during World War II. Ingenuity was the key. **ALOG**

Until his death earlier this year, Dr. Burton Wright III was the historian at the Army Chemical School at Fort Leonard Wood, Missouri. He was a frequent contributor to Army Logistician*, and we regret his passing.*



LOG NOTES

Coalition Logistics

The very interesting and timely article on coalition logistics by Colonel Patrick Dulin, published in the March-April issue, addressed a subject that I worked with for 10 years under the American, British, Canadian, and Australian (ABCA) Standardization Program. Your readers may be interested to know that descriptions of ABCA coalition logistics successes are available to all Army logisticians through the ABCA Web site at http://www.abca.hqda.pentagon.mil/default.htm.

The ABCA group responsible for logistics, called the Quadripartite Working Group for Logistics, or QWG LOG for short, developed International Standardization Agreement (ISA) 2020 on the Coalition Logistics Planning Guide (CLPG) and Chapter 5 in the Coalition Operations Handbook. Over the years, QWG LOG has developed multiple ISAs on a wide array of logistics topics, including mortuary affairs, salvage, disposal, pallet packaging, and the technical aspects of materiel such as ammunition.

I hope readers will check the ABCA Web site when they have logistics questions about coalition operations or if they need to locate a person who can provide more specific information.

Bernard P. LeVan
New Cumberland, Pennsylvania

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NEWS

(News continued from page 1)

AMC TESTS LOGISTICS MODERNIZATION PROGRAM SOLUTION

The Logistics Modernization Program (LMP)—previously known as the Wholesale Logistics Modernization Program—is testing the solution it will use for logistics business transactions at all levels. This is a significant step forward in the development of the LMP, which eventually will replace the Commodity Command Standard System and the Standard Depot System.

LMP is a partnership between the Army Materiel Command (AMC) and Computer Sciences Corporation (CSC). The partnership requires CSC to provide AMC with best business practices and updated information technology as a "service," rather than a software or hardware product. The method selected for providing this service is Enterprise Resource Planning (ERP). ERP is designed to integrate the work processes that deliver products to customers while maximizing efficiency from production to customer sales.

By implementing an ERP solution, AMC will link sales forecasting, order entry, manufacturing, distribution, materiel management, inventory, and financial information management functions. The ERP solution is one of the primary enablers in achieving a totally integrated, seamless logistics system across the Army, which is a requirement in the Revolution in Military Logistics.

CSC will use SAP software to execute the ERP solution. Currently, subject matter experts throughout AMC, with assistance from CSC, are configuring SAP to accommodate AMC logistics business requirements.

The ERP system will be based on transactions. When a business transaction such as a requisition occurs, the entry into the system will immediately affect all related business processes, such as inventory balancing and financial reporting.

The LMP solution testing is being conducted in a hierarchical fashion; each level is inspected and approved as the ERP solution is constructed. To ensure that all users are proficient at AMC's major subordinate commands and Defense Finance and Accounting Service sites that are modernizing, significant employee training will take place in the LMP implementation.

ARMY IMPLEMENTS SYSTEM TO MEASURE READINESS

The Army is implementing a new readiness reporting system that moves beyond the traditional unit status report (USR) to capture information on logistics and support organizations. While the USR measures the readiness of combat units, the new Strategic Readiness System (SRS) also will gather data on sustainment, installations, infrastructure, the industrial base, and well-being.

SRS is based on the balanced scorecard methodology. The Army Scorecard identifies metrics for each readiness area, which are tied to the annual Army Plan. Each subordinate command and staff directorate has developed its own accountable scorecard. Commanders and leaders will be able to use the SRS to monitor how their operations support the overall Army vision and objectives as articulated in The Army Plan. To ensure that each scorecard is current, SRS uses an automated program that can reach into more than 5,000 Army databases to pull the most up-to-date information.

As the Army transforms, it is integrating current information technology into its combat and support forces to create near-real-time situational awareness at the tactical level and to streamline the logistics tail associated with those forces. SRS uses this technology to enhance readiness reporting.

"The SRS changes the way we evaluate readiness. It is a new construct that holistically considers and reports every aspect of the Army that contributes to readiness, many that we didn't formally consider before," said General Eric K. Shinseki, Chief of Staff of the Army. "Transformation is about much more than platforms and equipment, and readiness is about much more as well. The new SRS responds to this more encompassing and accurate notion of readiness."

Headquarters, Department of the Army, staff elements and major commands began using the system in June. It eventually will be used in divisions and separate brigades.

Registered Army Knowledge Online users can get more information on SRS and the Army Scorecard on the Web at https://akocomm.us.army.mil/srs/.

WARRANT OFFICER STUDY RELEASED

The third study conducted by the Army Training and Leader Development Panel recommended that warrant officers be fully integrated into the officer corps, paid more, and, in some cases, recruited from technical schools and college ROTC programs. This study follows studies of the commissioned officer corps and the noncommissioned officer corps, the results of which have been released previously.

The study recommended a total of 63 changes to improve the training, manning, and professional development of warrant officers. These recommendations will be reviewed by an Implementation Process Action Team at the Pentagon, to determine exactly how they can be implemented.

According to Chief Warrant Officer 5 John Sparkman, director of the warrant officer study, one of the most significant recommendations of the study is to change the "mindset" of the Army Training and Doctrine Command by eliminating the separate warrant officer education system and melding it into the officer education system. Warrants then would attend the officer basic and advanced courses with lieutenants and captains.

The study recommended that each branch establish a chief warrant officer position. Sparkman said that six of the 15 branches that have warrants already have such a position.

If the panel's recommendations are implemented, all education and career progression would be branch specific. The panel recommended elimination of the separate warrant officer division at the Total Army Personnel Command so that all assignments would be managed by the 15 branches. Warrant officers would wear their branch insignia instead of the warrant "rising eagle" on their collars.

Increasing the difference between warrant officer and NCO pay would help recruiting of warrant officers, Sparkman said. He explained that there's only a 5.5 percent difference in staff sergeant and warrant officer 1 pay and no difference in sergeant first class and warrant officer 1 pay.

Another recommendation of the study is to recruit civilians from technical schools and college ROTC programs for certain warrant officer technical fields such as signal and intelligence.

INTERSERVICE RADIO WILL IMPROVE BATTLEFIELD COMMUNICATIONS

The Department of Defense last month awarded a contract to the Boeing Company for production of a Joint Tactical Radio System (JTRS) that will improve radio communications and interoperability among the military services. The $856.5 million-dollar contract was for the first phase, or "cluster," of the JTRS. Cluster 1 deals mainly with the development of radios for ground vehicles and rotary wing aircraft.

The Army, which developed cluster 1, also will develop cluster 2, which focuses on handheld radios. The Navy will develop cluster 3, which centers on radios for ships and base stations, and the Air Force will develop cluster 4, which concentrates on radios for aircraft. When all the clusters are completed and the communication devices are fielded, soldiers on the ground should be able to communicate directly with aircraft and ships at sea.

"This means that units can now talk to each other without deploying people," said Colonel John Grobmeier, program manager for Tactical Radio Communications Systems. "Over the years, the services built a bunch of radios [that] could not talk to one another. This was not very effective, especially on the battlefield. With the JTRS . . . , we will be able to talk to each other using data, video, and teleconferencing."

SUPPLY AWARDS PRESENTED

Each year, the Chief of Staff of the Army recognizes the Army's best supply units with the Army Supply Excellence Award. This year, a new award, the Best of the Best Award, has been created to recognize individuals who are the best in specific supply functions. Vice Chief of Staff of the Army General John M. Keane presented the 2002 awards in September.

The ***Army Supply Excellence Award*** winners were—

Active Army

Modification Table of Organization and Equipment (MTOE) Company With Property Book. Headquarters and Headquarters Battery, 18th Field Artillery Brigade, Fort Bragg, North Carolina.

MTOE Company Without Property Book. Headquarters and Headquarters Company, 4/123d Aviation Regiment, Fort Wainwright, Alaska.

MTOE Battalion With Property Book. 505th Quartermaster Battalion, Okinawa, Japan.

MTOE Battalion Without Property Book. 725th Main Support Battalion, Schofield Barracks, Hawaii.

Table of Distribution and Allowances (TDA) (Small). Headquarters and Headquarters Battery 1/15th Field Artillery Regiment, 2d Infantry Division, Tongduchon, Korea.

TDA (Large), Class IX or All Classes. 527th Military Intelligence Battalion, Yongsan, Korea.

TDA Supply Support Activity (SSA) (Small), Class IX or All Classes. 80th Area Support Group, Chievres, Belgium.

TDA SSA (Medium), Class IX or All Classes. 22d Area Support Group, Vicenza, Italy.

TDA SSA (Large). Regional SSA, 100th Area Support Group, Vilseck, Germany.

MTOE SSA (Small), Class IX or All Classes. 71st Ordnance Company, Hanau, Germany.

MTOE SSA (Medium), Classes II, IV, VII. 26th Quartermaster Supply Company, Hanau, Germany.

MTOE SSA (Medium), Class IX or All Classes. 98th Maintenance Company, Special Troops Battalion, Fort Richardson, Alaska.

MTOE SSA (Large), Class II, IV, VII. 702d Main Support Battalion, 2d Infantry Division, Tongduchon, Korea.

MTOE SSA (Large) Class IX or All Classes. C Company, 801st Main Support Battalion, Fort Campbell, Kentucky.

Army National Guard

MTOE Company With Property Book. Headquarters and Headquarters Detachment, 730th Quartermaster Battalion, Asheville, North Carolina.

MTOE Company Without Property Book. 1436th Engineer Company (Combat Support Engineers), Flint, Michigan.

MTOE Battalion With Property Book. Headquarters, 2/147th Aviation Regiment, Saint Paul, Minnesota.

MTOE Battalion Without Property Book. 150th Engineer Battalion, Meridian, Mississippi.

TDA (Small). Headquarters, 197th Regiment Regional Training Institute, Kingwood, West Virginia.

MTOE SSA (Small), Class IX or All Classes. 192d Support Battalion, Salinas, Puerto Rico.

MTOE SSA (Medium), Class IX or All Classes. USPFO for Nebraska Supply Center, Lincoln, Nebraska.

MTOE SSA (Large), Class IX or All Classes. USPFO for Louisiana SSA , Alexandria, Louisiana.

Army Reserve

MTOE Company With Property Book. 1011th Quartermaster Company, 89th Regional Support Command (RSC), Independence, Kansas.

MTOE Company Without Property Book. 650th Transportation Detachment, 81st RSC, Wilmington, North Carolina.

MTOE Battalion With Property Book. 396th Combat Support Hospital, 70th RSC, Vancouver, Washington.

MTOE Battalion Without Property Book. 325TH Quartermaster Battalion, 89th RSC, Belton, Missouri.

TDA (Small). Southern European Task Force Augmentaton Unit, 7th Army Reserve Command, Vicenza, Italy.

TDA (Large). Supply and Service Division-G4, 7th Army Reserve Command, Schwetzingen, Germany.

MTOE SSA (Small), Class IX or All Classes. Detachment 1, 1011th Quartermaster Company, 89th RSC, Pittsburg, Kansas.

The ***Best of the Best Award*** winners were—

Active Army

Accountable Officer. Chief Warrant Officer 3 Larry Henderson, C Company, 801st Main Support Battalion, Fort Campbell, Kentucky.

Stock Control. Sergeant Felicia Tyson, C Company, 10th Aviation Regiment, Fort Drum, New York.

Storage. Staff Sergeant Leslie Smith, C Company (Aviation Intermediate Level Maintenance [AVIM]), 123d Aviation Regiment, Fort Wainwright, Alaska.

Reparable Exchange. Private First Class Ieshia Squires, 71st Ordnance Company, Hanau, Germany.

Issue and Receiving. Sergeant Bao Fang, 702d Main Support Battalion, 2d Infantry Division, Tongduchon, Korea.

Turn-In. Specialist Jae Yun, G Company (AVIM), 52d Aviation Regiment, Wonju, Korea.

Property Book Officer. Chief Warrant Officer 2 Kevin Comer, 95th Military Police Battalion, Mannheim, Germany.

Property Book Noncommissioned Officer in Charge (NCOIC). Staff Sergeant Daniel A. Kursinsky, 77th Army Band, Fort Sill, Oklahoma.

Property Book Office Clerk. Kiyomi Yamaguchi, 505th Quartermaster Battalion, Okinawa, Japan.

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✩U.S. GOVERNMENT PRINTING OFFICE: 2002–432-782-00019

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ISSN 0004–2528
DEPARTMENT OF THE ARMY
ARMY LOGISTICIAN
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