Field Artillery

A Professional Bulletin for Redlegs

September-October 1999

RC REDLEGS

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ARTICLES: Reserve Component Redleg

FEATURE ARTICLES

DEPARTMENTS

PURPOSE: (as stated in the first ***Field Artillery Journal*** in 1911): *To publish a journal for disseminating professional knowledge and furnishing information as to the Field Artillery's progress, development and best use in campaign; to cultivate, with the other arms, a common understanding of the power and limitations of each; to foster a feeling of interdependence among the different arms and of hearty cooperation by all; and to promote understanding between the regular and militia forces by a closer bond; all of which objects are worthy and contribute to the good of our country.*

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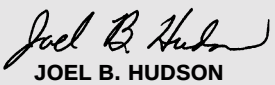
By Order of the Secretary of the Army:

Eric K. Shinseki
General, United States Army
Chief of Staff

Official:



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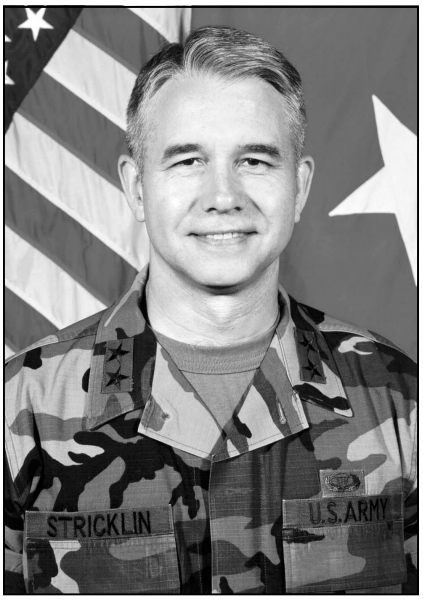
Field Artillery
Relevant, Trained and Ready



My "start point" as the new Chief of Field Artillery is from a position of strength. The FA is in great shape today and well postured for the future—a tribute to the foresight and brilliant leadership of Major General Leo J. Baxter and other former Chiefs of FA.

On 22 June 1999, General Eric K. Shinseki became the 34th Army Chief of Staff. Paraphrasing General Shinseki's intent for the Army, the Chief wants early entry forces to be able to operate without access to fixed forward bases but still retain the punch to slug it out and win campaigns decisively. Heavy forces must be more strategically deployable and more agile with a smaller logistical footprint. And our light forces must be more lethal, survivable and tactically mobile.

We have bold and dynamic initiatives ongoing that address materiel modernization, doctrine, organizations, training, leader development and future Field Artillerymen. These initiatives complement the Chief of Staff's intent and build on the principles of effects-based fires, dynamic force tailoring, organizational transformation and munitions centrality.

Our many new or modified materiel systems give us the tools to meet the Chief's intent: high-mobility artillery rocket system (HIMARS); Q-47 Firefinder radar; lightweight 155-mm howitzer; Crusader, our future howitzer and technology carrier and the Army's number one ground combat system modernization priority; lightweight laser designator rangefinder (LLDR); gun-laying and positioning system (GLPS); sense and destroy armor munition (SADARM); the Army tactical missile system (ATACMS) and its BAT, a brilliant submunition fired at armored targets; Excalibur, the future M982 155-mm extended-range guided projectile; and Striker, our digitized and mobile observation teams. Next summer our participation in the Joint Contingency Force Advanced Warfighting Exercise will help us advance and refine our systems.

Relevant. Every new commander first should analyze the organization's mission. The mission of the Field Artillery is "To destroy, neutralize or suppress the enemy by cannon, rocket and missile fires and to integrate all supporting fires into combined arms operations." This mission statement is displayed above the entrance to Snow Hall Auditorium at the FA School on Fort Sill to remind generations of Field Artillerymen what the definition of "success" is. Although all aspects of our mission are important, as I conduct my mission analysis, I find the critical and complex "integration of supporting fires into combined arms operations" demands special emphasis.

A review of US involvement in warfighting operations over the past century shows the FA has contributed greatly to the success of the maneuver commander. The King of Battle has been respected and decisively relevant during our two World Wars, Korea and Vietnam. During Operation Desert Storm, the timeliness, accuracy and lethality of cannon, rocket and missile fires proved to be devastating to Iraqi forces. History is replete with examples of the superior performance of Field Artillery throughout the ages.

However, over the past decade, some have perceived that fires may not contribute to combined arms operations to the same extent today as they have in the past. Experience tells me that fires don't always achieve the level of support we would like at our combat training centers (CTCs).

The commander of the Combined Arms Center at the Training and Doctrine Command (TRADOC) has undertaken a "CTC Trends Reversal" initiative that I fully support. However, I am concerned about the potential perceptions of former platoon, company, battalion and brigade maneuver commanders regarding FA support in combined arms operations. We may have developed generations of maneuver commanders whose training experiences with integrated fires do not reflect our historical performance in combat.

This is not an indictment of our CTCs or FA or maneuver units. Our CTCs present a credible challenge for the combined arms team, and our units are well trained and led—but integrating fires in combined arms operations is very difficult.

As an element of my mission analysis, I will review how we train our observers, fire support team (FIST) members, fire support NCOs, fire support officers (FSOs) and fire support coordinators (FSCOORDs). Additionally, I will conduct a comprehensive review of our fire support doctrine and assess its relevance. If institutional changes are needed, we'll do so.

For the FA to remain relevant, we must be able to accomplish our mission. When the maneuver commander challenges the FA to provide supporting fires, he should have steadfast confidence that the FA *can* and *will* skillfully integrate all fires into combined arms operations with impeccable timeliness and accuracy.

So I ask our maneuver commanders who might be reading this column, especially joint task force, Army force (ARFOR), corps, division and brigade commanders, "What are your percep-

A few of the new bright and shining stars for the future of the Field Artillery. Crusader (top) the self-propelled howitzer of the future; HIMARS (left); and the LLDR all support the Chief of Staff of the Army's intent.

tions of the FA and fire support? What must we do better to support you?" If you'll respond to these questions, we'll publish your comments in this magazine—starting with the Chief of Infantry's article "Is the FA Walking Away from the Close Fight?" (Categorically, the answer to that question is, *"No!"*) Your responses will be helpful in bridging our historical report card to today's performance—together we can ensure fires give you the effects when and where you need them.

Trained. Annually Fort Sill trains about 21,000 officers, NCOs, soldiers and Marines. We do this very well. However, we can do better.

Our institutional training must produce Field Artillerymen who have fully transitioned from the Cold War mindset of a decade ago to Redlegs who have the training and self-confidence that reflect a better understanding of the unpredictable nature of our changing world. They must fully understand the FA's role in joint/combined arms operations in a nonlinear, simultaneous, precise, distributed environment against an enemy with a full range of asymmetric capabilities that often may be executed in urban settings.

And with more than two-thirds of the Army's FA in the Army National Guard (ARNG), we must train all Field Artillerymen to one standard—to accomplish our mission at any time and along any portion of the spectrum of conflict. For when the call comes, we'll conduct integrated, combined arms FA operations on behalf of our nation as the Army's Field Artillery.

Ready. Because of the unpredictable nature of this changing world, our FA units must be ready to respond with operations that fall on any point along the spectrum of conflict. Whether we're called to respond to a high-end Desert Storm or stability and support operations, such as those in Bosnia, we must remain ready.

Our FA commanders in the field have done a marvelous job of maintaining unit readiness. Today our challenge is to retain that readiness while improving our capabilities to achieve General Shinseki's intent.

To continue to remain ready, we must determine the FA's role in support of early entry forces that operate without access to fixed forward bases but still retain the punch to slug it out and win campaigns decisively. HIMARS, Q-47 and Q-36 Version 8 Firefinder, SADARM, Excalibur, Crusader, Striker, effects-based fires, dynamic force tailoring, organizational transformation and munitions centrality all figure prominently in the solution.

The FA supporting heavy forces must be more strategically deployable and more agile with a smaller logistical footprint. Our ATACMS/BAT, SADARM, Excalibur, Crusader, Striker and our four principles are essential to meet the Chief's intent.

And the FA supporting our light forces must be more lethal, survivable and tactically mobile. HIMARS, ATACMS/BAT, Q-36 Version 8 Firefinder, SADARM, Excalibur, LLDR, GLPS and our priniciples contribute to such a force.

As your Chief of FA, I intend to spend a lot of time visiting units worldwide—FA and maneuver. I will meet with our maneuver commanders to discuss their perceptions of FA and fire support and understand their concerns.

Our plan for the future is sound, but our maneuver commanders ultimately must have full confidence that their supporting FA is relevant, trained and ready. Together, we'll ensure and reinforce their confidence.

Major General Toney Stricklin became the Chief of Field Artillery and Commanding General of Fort Sill, Oklahoma, on 11 August 1999. In his previous assignment, he was the Director of Requirements in the Office of the Deputy Chief of Staff for Operations and Plans at the Pentagon. He also served as Deputy Commanding General for Training and Assistant Commandant of the Field Artillery School. He was the Assistant Deputy Chief of Staff for Combat Developments at the Training and Doctrine Command (TRADOC) Headquarters at Fort Monroe, Virginia, and Director of Combat Developments at the Field Artillery School, Fort Sill. Among other assignments, Major General Stricklin commanded the 210th Field Artillery Brigade at Fort Lewis, Washington; served as Senior Fire Support Combat Trainer at the National Training Center, Fort Irwin, California; and commanded 3d Battalion, 3d Field Artillery in the 2d Armored Division at Fort Hood, Texas.

Wanted: DSTATS Scenarios

The Army National Guard (ARNG) Training and Training Technology Battle Lab (T^3BL), Fort Dix, New Jersey, is looking for a wide variety of unit scenarios for its DSTATS' database—that is its digital systems test and training simulator—that soon will be available to the FA community on T^3BL's worldwide web site. DSTATS is a valuable training tool for Field Artillery tactical data systems operators.

The scenarios should include tactical data training for the firing battery to the brigade level. The training can include one-hour operator courses all the way up to full-blown brigade command post exercises (CPXs).

The DSTATS web site is www.army.ngb.army.mil/t3bl/strtpage.html and is linked to other useful web sites. Currently, the DSTATS web site contains a training strategy, a request for scenarios and submission pages plus frequently asked questions and DSTATS terms and acronyms.

While developing training scenarios using DSTATS is relatively easy, scenarios on a web site database will allow units to access and modify scenarios to fit their training needs, saving valuable training time. The entire FA community—active, Guard and Marines—is encouraged to submit and, eventually, download scenarios to improve unit training and readiness.

To implement this web site repository, the T^3BL will develop the web site in three phases.

Phase I—Acquisition Phase. Units prepare and copy their scenarios and related files and send them to the repository collection site, following the instructions at the site. Units must identify and tag their scenarios for uploading to the web site. Although the T^3BL has just begun implementing Phase I, this process will be ongoing throughout the life of the site as units prepare and share training scenarios.

Phase II—Upload Phase. T^3BL will upload all names and descriptions of scenarios and related files to the web site. The scenarios will be grouped by type and the primary military occupational specialty (MOS) trained.

Phase III—Distribution Phase. Units will review scenarios and related file descriptions on the web site. They then will be able to choose and electronically request the files for training. Each scenario will have a unit of origin along with a point of contact (POC) if the requesting unit has questions about the scenario.

If a unit would like to submit a scenario and has questions, contact Master Sergeant Timothy P. Maskery, FA Training Developer at the ARNG T^3BL: DSN 944-0524 or commercial (609) 562-0524. His fax number is 0502 and works with the DSN or commercial prefixes. MSG Maskery's email is maskerytp@nj-arng.ngb.army.mil.

Command and General Staff Officer Course

The US Army Reserves (USAR) runs Command and General Staff Officer Courses (CGSOC) in seven regions to give eligible officers in the Army Active Component (AC) and Reserve Component (RC) plus officers from the Marine Corps and other services professional education options. Completion of the course qualifies the officers at Military Education Level (MEL) 4.

The CGSOC Mission and Phases. CGSOC is taught as an alternative to resident or correspondence course command and staff schooling. The CGSOC mission is to educate leaders in the values and practices of the profession of arms, develop doctrine and promote the advancement of the military art and science.

This non-resident CGSOC consists of four phases. Student have 36 months to complete the course. The inactive duty training (IDT) instruction for Phases I and III begin in October and conclude in May. Classes are held either one night a week or one weekend a month or some combination of the two. CGSOC battalions provide the instructors and coordinate facilities for the classes.

Phases III and IV are active duty training (ADT) for two weeks each. ADT sessions are presented by the CGSOC battalions between June and mid-August at specified locations. All phases are sequential and students must complete each before continuing on to the next phase.

CGSOC is open to officers from the active Army, USAR and Army National Guard (ARNG). Additionally, CGSOC is open to Marine Corps, Air Force and Navy personnel as a professional officer education alternative.

Region A (ME, NH, VT, MA, RI, CT, NY, NJ) 12th BN (CGSOC), 98th Div (IT), Schenectady, NY, (518) 374-5250.

Region B (DE, DC, MD, VA, WV, PA) 10th Bn (CGSOC), 80th Div (IT), Owing Mills, MD, (410) 252-2935.

Region C (NC, SC, GA, FL) 11th Bn (CGSOC), 108th Div (IT), Concord, NC, (704) 793-4786.

Region D (AL, MS, TN, KY) 9th Bn (CGSOC), 100th Div (IT), Nashville, TN, (615) 353-2500, Ext. 1360.

Region E (MN, WI, MI, OH, IN, IL) 12th Bn (CGSOC), 84th Div (IT), Columbus, OH, (614) 693-9508.

Region F (NB, IA, KS, MO, NM, OK, AR, TX, LA) 11th Bn (CGSOC), 95th Div (IT), Independence, MO, (816) 836-0005, Ext. 269.

Region G (AZ, CA, CO, ID, MT, ND, NV, OR, SD, UT, WA, WY): 10th Bn (CGSOC), 104th Div (IT), Phoenix, AZ, 1-888-294-3187 or (602) 425-3543.

Eligibility Requirements. The following are the requirements for attendance at CGSOC:

- Meet height/weight standards (as outlined by AR 600-9 Army Weight Control Program) plus Army Physical Fitness Training (APFT) standards. Any officer who does not meet these standards must provide DS Form 5500 or 5501 with his enrollment forms.
- Have completed the Combined Arms and Services Staff School (CAS^3), Fort Leavenworth, Kansas.
- Hold the rank of Major or be a promotable Captain.

Officers who are interested in attending CGSOC enroll via their unit Army training requirements and resources system (ATRRS). If officers have questions, they can contact the CGSOC battalion in their region.

LTC Patrick S. Wagoner, USAR
CI Program Officer
12th Bn (CGSOC), 84th Div (IT)
Columbia, OH

Army National Guard FIRES

by Colonel Daryl K. McCall, ARNG

When Henry Knox, our nation's first Chief of Field Artillery, brought his long train of guns over the mountains from Fort Ticonderoga to Boston in the winter of 1775-76, his drovers, teamsters and even some of his cannoneers were citizen-soldiers who temporarily left their farms and factories to answer the call of freedom. When the American forces were bogged down during the Anzio Beach landing in 1943, the National Guardsmen of the 158th, 160th and 189th Field Artilleries (FAs) fired over open sights at Panzer tanks less than 800 yards away and turned the battle's tide. And when survivors of the Iraqi Army coined the term "Steel Rain" to describe the devastation created by our fires in 1991, it was Guard artillery units, such as those from Arkansas, Oklahoma, Tennessee and West Virginia, that helped send those rockets, missiles and projectiles on their deadly trajectories.

Throughout our nation's history, the Army National Guard (ARNG) always has provided a necessary piece of the Army's combat effectiveness. But many Redlegs may not fully understand what we bring to the fight today.

This article is based on my presentation at the April 1999 Senior Fire Support Conference at Fort Sill, Oklahoma, and provides a basic outline of what the Army National Guard FA brings to the Army.

Divisional Artillery. Currently, the National Guard has eight divisions, one of which is light—the 29th in Virginia. Elements of these divisions are frequently deployed in support of outside continental US (OCONUS) operations, particularly in Eastern Europe. Every Guard divisional target acquisition battery (TAB) has had a rotation to Bosnia. Four Guard divisions have sent brigade fire support elements (FSEs) to support the Nordic-Polish Brigade in Sarajevo, and the 35th Infantry Division (Mechanized) Artillery (Div Arty), Kansas ARNG, deployed

its meteorological section, also to Sarajevo.

Two divisions are participating in an innovative program called "division teaming." Introduced in the Army Chief of Staff's "One Team, One Fight, One Future" white paper, division teaming is a pilot program that teams selected Active Component (AC) and ARNG divisions for mutual support of operational requirements. The 1st Cavalry Division at Fort Hood, Texas, is teamed with the 49th Armored Division, Texas ARNG, and the 4th Infantry Division (Mechanized), also at Fort Hood, is teamed with the 40th Infantry Division (Mechanized) of the California ARNG.

Something new this year: the 40th Div Arty headquartered in Los Angeles is commanded by Colonel Mark A. Graham, an AC FA officer. The selection process is on-going for a National Guard officer to command an AC battalion in FY 2000. This interchange of active and Guard officers at the battalion and Div Arty levels should prove valuable as it broadens professional experience for the exchange commanders and demonstrates the seamless interoperability between AC and ARNG personnel in the Field Artillery community.

Another innovation that encourages interoperability is the introduction of National Guard multiple-launch rocket system (MLRS) units into AC divisions. With the approval of a full 3x6 divisional MLRS battalion in heavy AC divisions, the Army is experimenting with the third battery's being provided by the National Guard. This experiment will begin at Fort Hood with the 1st Cavalry and 4th Infantry Divisions and continue at Fort Stewart, Georgia, with the 3d Infantry Division (Mechanized). These Guard batteries will be home-stationed in Texas for the 1st Cav and 4th Divisions and in South Carolina for the 3d Division. The proximity of the Guard MLRS units to major active duty training bases will greatly improve their abilities to train frequently and effectively.

Separate Brigade Direct Support (DS) Artillery. The Guard has eight heavy separate brigades and an armored cavalry regiment (ACR). Seven of the brigades and the ACR are designated and resourced as enhanced separate brigades (eSBs), manned and equipped for early deployment. To ensure they are combat effective, training rotations to the National Training Center (NTC) at Fort Irwin, California, are a standard event on their training calendars. Currently equipped with the M109A5 self-propelled howitzers, all ARNG FA battalions DS to enhanced brigades are scheduled to get M109A6 Paladins by the end of FY00.

The National Guard's 30th, 48th and 218th Infantry Brigades in North Carolina, Georgia and South Carolina, respectively, will comprise the recently reactivated 24th Infantry Division (Mechanized) that's headquartered at Fort Riley, Kansas. Their respective DS battalions are the 1st Battalion, 113th FA (1-113 FA), 1-118 FA and 1-178 FA, each located in the same state as its infantry brigade. The 24th "Victory Division," formerly stationed at Fort Stewart, boasts a proud heritage stretching from World War II to the Persian Gulf War and will be an Active-Guard integrated heavy division.

In addition, the Guard has eight separate infantry brigades. Seven are enhanced brigades, and their training includes rotations at the Joint Readiness Training Center (JRTC) at Fort Polk, Louisiana. The 39th, 41st and 45th Infantry Brigades in Arkansas, Oregon and Oklahoma, respectively, will make up the reactivated 7th Infantry Division (Light), the second Active-Guard integrated division. The infantry brigades' respective DS battalions are the 1-206 FA, 2-218 FA and 1-160 FA, each located in its infantry brigade's state. These battalions have either the M102 or M119 towed howitzers. The 7th Division, formerly of Fort Ord, California, is headquartered at Fort Carson, Colorado.

Corps Artillery. There are four corps artillery headquarters in the Army, one of which is in the National Guard. I Corps Artillery is headquartered in Salt Lake City, Utah, with an FSE deployed to Fort Lewis, Washington, the I Corps Headquarters.

I Corps Artillery provides training, guidance and coordination for a significant portion of National Guard artillery throughout the country. The corps artillery and its units have participated in many training exercises, to include the Yama Sakura exercise in Japan, the Cobra Gold Joint Task Force exercise centered on Thailand and Global Patriot, a joint exercise with the Air Force.

The 17 FA brigades in the National Guard are key components of the National Guard artillery and success of Army operations. Meteorological sections from four ARNG brigades have been mobilized in support of on-going Bosnia operations.

To help guarantee these force-multiplying units will be ready for larger scale operations, six of those 17 FA brigades have been designated as force support package (FSP) brigades. FSP units are intensively managed to ensure they sustain a high rate of readiness by maintaining their personnel strength and equipment on-hand levels and by participating in force modernization programs. The good news in training is that for the first time all Guard FA brigades are scheduled to participate in a Battle Command Training Program (BCTP) at least every other year.

Army Reliance on ARNG Field Artillery. All modified table of organization and equipment (MTOE) FA units in the Reserve Component (RC) are in the National Guard, and the Guard has over two-thirds of the Army's FA. One way of demonstrating the significance of that statement is to show a graphic comparison of AC and ARNG corps

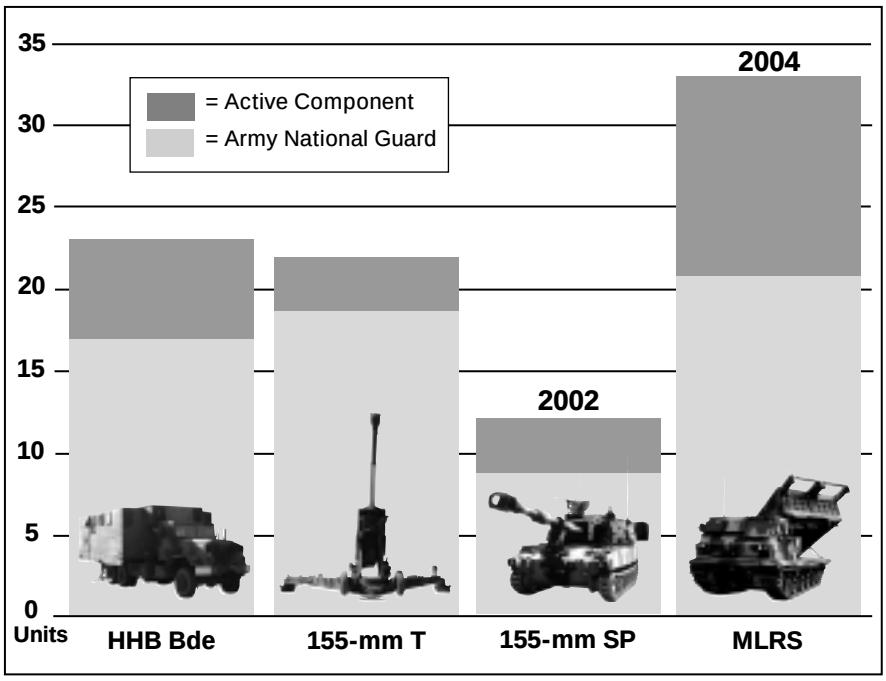


Figure 1: Comparison of AC and ARNG Corps Artillery Units. The graph factors in the headquarters and headquarters battery (HHB) of FA brigades (Bdes) and corps artillery battalions that have 155-mm towed (T) and 155-mm self-propelled (SP) howitzers plus those with multiple-launch rocket systems (MLRS).

artillery (See Figure 1). Currently 17 of 23 FA brigade headquarters and 19 of 22 FA 155-mm towed battalions in the Army are in the National Guard. The Guard also has nine of the 12 155-mm self-propelled battalions. All nine are already Paladin battalions or in the process of transitioning to Paladin.

Eleven M109A5 battalions will convert to MLRS by FY 2004. The FY 2004 end state for Guard MLRS will be 21 of the 33 corps artillery MLRS battalions in the Army.

Another way to demonstrate the significance of Guard Field Artillery is to look at the Army's ability to deploy AC divisions to a major theater war without calling on National Guard artillery. Doctrine allocates two FA brigades per committed division and one per corps. Relying on AC artillery alone, there are enough FA brigades to deploy only one heavy division along with it corps headquarters. For light divisions, the AC has a single light Field Artillery brigade. Assuming a doctrinally correct allocation of FA, no AC light division can be deployed to a major theater war without calling on National Guard artillery.

Figure 2 shows a notional AC deployment of divisions to major theater war(s). Assuming the doctrinally correct allocation of two FA brigades per division and one per corps, the ARNG *must* be called upon for 75 percent of the required FA brigades. Without a doubt, National Guard FA brings to bear the long-range firepower that will give our Army decisive victory in any future armed conflicts.

Force Modernization. National Guard FA units have many programs and initiatives to modernize. Formerly, the Army National Guard was infamous for the age and near-obsolescence of its equipment. But current programs are dispelling that situation: we turn over every artillery system in the Guard during the next 10 years—a tremendous modernization success story.

Guard MLRS battalions started converting to 3x6 this year, freeing more launchers for modernization fieldings. The 21 Guard MLRS battalions in 2004, including the 11 newly converted battalions, will upgrade their launchers to the new M270A1 in the 2005 to 2011 time frame.

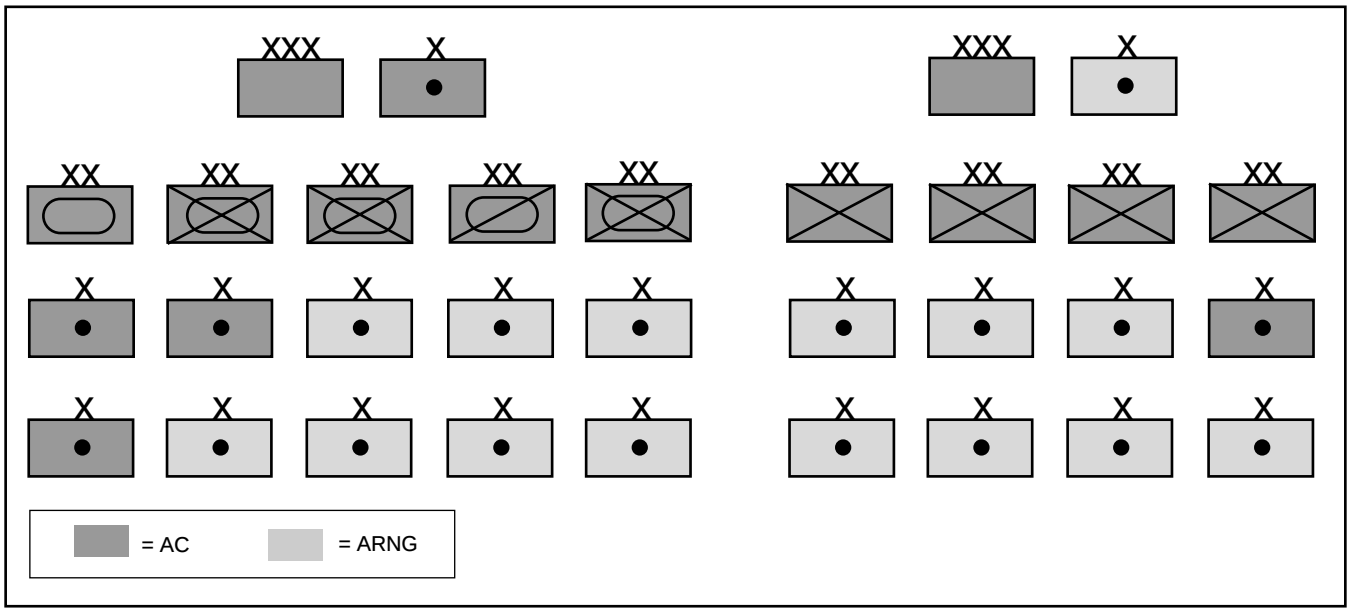


Figure 2: Deploying the AC Force. The Army deploys with two artillery brigades per division and one per corps. If the Active Component (AC) force deployed to major theater war(s) with two of its three corps and nine of its 10 divisions as shown in this notional graphic, the Army National Guard (ARNG) would provide 15 of the 20 FA brigades.

A digitized cannon with on-board position, navigation, communications and fire control capabilities is essential for the Guard to fight as part of a modernized, digitized force. Paladin currently provides these, and, thus, the Guard is actively replacing all M109A5s with Paladins. The conversion of battalions from 3x8 to 3x6 is allowing a cascade effect of equipment transfers. This, along with National Guard dedicated procurement for additional platforms, will provide the necessary resources. All National Guard corps and heavy separate brigade self-propelled artillery battalions are scheduled to convert to M109A6s by the end of FY 2000. There is also an initiative underway to upgrade our teamed divisions with Paladins.

The rapid rate of Paladin fielding places a heavy load on new equipment training (NET) assets. The National Guard has assigned 30 Guard soldiers to the Gunnery Department of the FA School at Fort Sill, Oklahoma. They work with a like number of AC soldiers in two integrated Active-Guard NET teams. Together, they ensure our National Guard cannoneers receive training to effectively and safely operate their new equipment.

The first corps battalion scheduled to be fielded with the exciting new Crusader howitzer will be a National Guard battalion with a total of 25 Crusader battalions programmed for the Guard. By 2010, the Guard will be totally modernized with a combination of Crusader and Paladin self-propelled howitzers.

The Crusader training strategy is good news for the Guard. Citizen soldiers must constantly balance their time between civilian occupations and military training commitments. The Crusader-integrated training approach—with embedded training, desktop trainers and crew-station trainers—will provide the flexibility needed in the Guard.

The high-mobility artillery rocket system (HIMARS) will provide MLRS firepower for light and early entry forces. There are 16 HIMARS battalions programmed for the Army, 14 of which will be in the National Guard.

Of course, making these equipment improvements effective requires improvements in command and control methods, and the advanced Field Artillery tactical data system (AFATDS) will give us just that. The biggest news for the Guard is the revised fielding schedule that will get AFATDS to the National Guard Field Artillery brigades much earlier than originally planned. (See Figure 3.) The new schedule lengthens the active division fielding schedule but prioritizes go-to-war units and aligns all artillery brigades with active divisions.

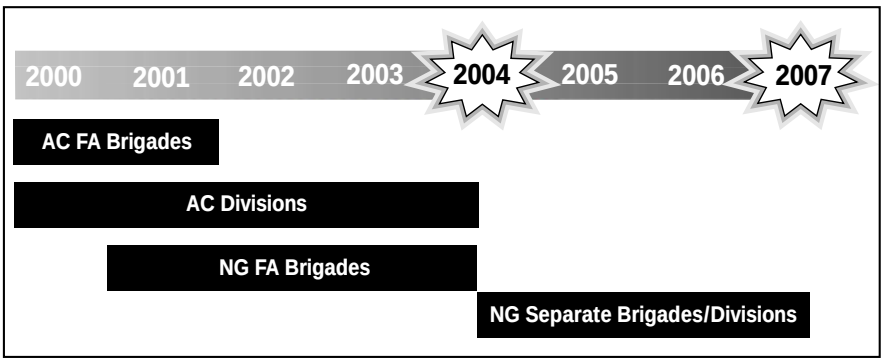


Figure 3: Advanced Field Artillery Tactical Data System (AFATDS) Fielding. AFATDS will be fielded to the FA—all Active Component (AC) and National Guard (NG) units—by 2007.

By 2004, all AC divisions and FA brigades plus National Guard brigades will be AFATDS-equipped. By 2007, the entire Field Artillery will be on a common command and control system, the only way to effectively coordinate the vast amount of firepower available to our forces in the field.

Training. Unquestionably, the ultimate challenge for the Guard is training. Limited training time and facilities have always been a challenge. However, during the past few years and into the next decade, the Guard is going to face additional challenges. As equipment conversions and force modernization are taking place at unprecedented rates, a large portion of the Guard force will require NET.

The Guard continues to digitize, particularly with the upcoming proliferation of AFATDS. Sustainment training is critical for a digitized force. With the fielding of AFATDS, this will be a continuing challenge for the Guard, just as it is for the AC.

The Guard is employing technology to meet the training challenge. Simulators such as the fire support combined arms tactical trainer (FSCATT) and simulations like the Guard unit armory device, full-crew interactive simulation trainer (GUARDFIST) and digital systems test and training simulator (DSTATS) help replicate in local guard armories what would otherwise require field exercises. In addition, the Guard's Training and Training Technology Battle Lab (T^3BL) at Fort Dix, New Jersey, seeks to exploit these and other emerging technologies to increase training effectiveness.

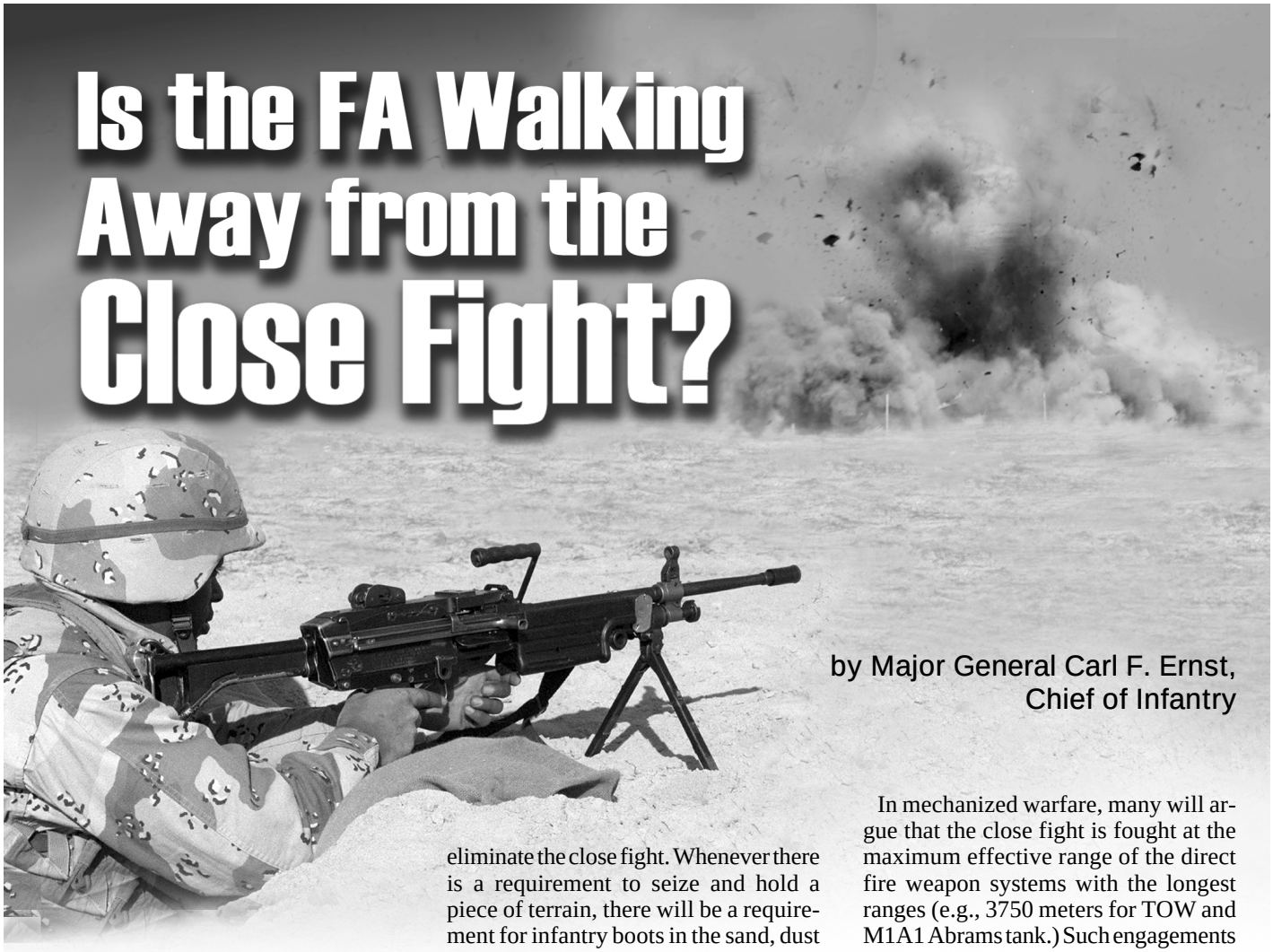
The Guard is heavily involved in distance learning—transmitting standardized training lessons through GuardNet to soldiers at their home stations. GuardNet is the Guard's distance learning network that has voice, video and data capabilities. Local communities can use GuardNet for command and control, education and other purposes. Fort Sill has already used GuardNet for MLRS NET.

When it comes to distance learning, Fort Sill and the Field Artillery are clearly leading the way for the Army. No other branch or service school has begun to approach the effort the FA has put into the digitization of courseware and the application of distance learning.

The FA's efforts and initiatives to bring about a seamless, integrated force is unparalleled within the Army. The National Guard is proud to be a member of the *One Army…One Artillery Team!*

Colonel (Promotable) Daryl K. McCall is the Deputy Commanding General of Fort Sill for Army National Guard, the first to hold the position created in late 1998. As the DCG-ARNG, he spends 139 days on active duty each year, starting 1 October, with an office at Fort Sill, Oklahoma. He advises the Chief of FA on current and future training, doctrine and combat development applications for the ARNG and visits FA units to identify ARNG issues and solve problems. In his previous position, he commanded the 45th Field Artillery Brigade, Oklahoma ARNG. As a Title X officer, he served as Director of the Support Personnel Office for the Oklahoma State Area Command in Oklahoma City and as Assistant Chief of Staff of the Combined Arms Center at Fort Leavenworth, Kansas. He is a graduate of the National War College in Washington, DC, and holds a Master of Business Administration from the University of Central Oklahoma in Edmond.

Is the FA Walking Away from the Close Fight?



by Major General Carl F. Ernst,
Chief of Infantry

There is no question the success of the United States Army over two centuries of fighting and lessons learned has been as a result of the devastating effect of combined arms warfare and our ability to wage it better, faster, more accurately and with greater lethality than our opponent. The friendly rivalries that exist between the combat arms, combat support and combat service support branches only serve to heighten the fact that to succeed on the battlefield we must all come together as a team to fight and win.

On the eve of a new millennium, I would like to reflect on the capabilities of our Army and some of the constants worth remembering as we seek to develop, adapt and employ new technologies to one of mankind's oldest pursuits—the Art of War—and, specifically, the close fight.

Without question, our current and projected Field Artillery (FA) systems provide an unparalleled degree of range, accuracy and lethality. However, the capabilities of these systems will never eliminate the close fight. Whenever there is a requirement to seize and hold a piece of terrain, there will be a requirement for infantry boots in the sand, dust or mud, accompanied by tanks and Bradleys and the close supporting fires of the King of Battle. Technological improvements and stand-off weaponry cannot eliminate closing with and destroying the enemy in a close fight that requires the mass and lethality of the FA.

In some types of operations, for instance airborne and air assaults, we still initiate combat with a close fight as opposed to a "deep attack." History has proven that regardless of the high technology, precision, long-range systems brought to bear, there will always be a requirement for the *Grunt* to confront the enemy in close, personal and brutal combat. We need your fires when that happens and we need them close.

How Close Is Close? I have spent a lot of my career thinking about close maneuver or the "gunfight" and the combined arms necessary to win it. The answer to the question of how close is close enough for fires is, simply, as close as I need them to kill the enemy or close enough to keep his head down while I get in there to finish the job.

In mechanized warfare, many will argue that the close fight is fought at the maximum effective range of the direct fire weapon systems with the longest ranges (e.g., 3750 meters for TOW and M1A1 Abrams tank.) Such engagements maximize the capability of our weapons systems and take advantage of our technological superiority and the high state of training of our soldiers. On the other hand, I would suggest that this overlooks the reality of combat, especially in close terrain, and the weekly lessons of the National Training Center (NTC) at Fort Irwin, California; the Joint Readiness Training Center (JRTC) at Fort Polk, Louisiana; and the Combat Maneuver Training Center (CMTC) at Hohenfels, Germany.

This is certainly true of the infantry squad that must dismount to clear defiles and assault strongpoints or the sapper team that gets out of its vehicle to mark an obstacle lane. The close fight for rifle infantry is an entirely different situation that's a lot closer, more brutal and intensely personal. Combat at distances short of maximum effective range and down to gunfighting range is the true essence of what the close fight is all about. To close to these distances with any hope of winning and surviving as an effective fighting force, the maneu-

ver commander relies on close, indirect fires from mortars and artillery.

Typically, we neither plan nor train to employ these fires at distances that will support the maneuver commander's intent. I would suggest that, regardless of the operation, artillery and mortar fires must be able to support maneuver at much closer ranges than currently imagined. The purpose of these close fires is to keep enemy direct fires off the maneuver force while it closes with the enemy. To accomplish such fires effectively and with minimal risk, the infantryman and the artilleryman must be well versed in the capabilities and risks associated with all indirect fire systems.

Acceptance of Risk. The key factor in determining how close to bring indirect fires in support of maneuver remains the amount of risk the commander is willing to accept. It goes without saying that no maneuver commander wants to lose his soldiers to friendly fire; however, the thoughtful commander will balance the risk to his troops against suppression or destruction of the enemy force.

In many cases, 200 meters is too far out to lift or shift artillery fires. Two hundred meters could easily equate to 10 minutes or more for infantry to assault a strongpoint without supporting artillery. In addition, 200 meters could be the very point where the enemy has his final protective line (FPL) established, thus making it the crucial time and place where suppressive artillery fires on the objective in support of the assault are needed the most. Again, the thoughtful commander must carefully weigh those considerations.

Our training philosophy is to train as we fight. However, our ability to truly accomplish this is constrained by the concern for training safety in a peacetime force. Army Regulation (AR) 385-63 Training Safety explains how to determine minimum safe distances (MSDs) for all live-fire systems and governs the conduct of live-fire training. Following AR 385-63 safety computations, the maneuver commander must stop the firing of indirect systems long before it would be tactically prudent on the battlefield. As a result, he necessarily trains to expose his ground forces to unsuppressed and lethal enemy direct fires across the critical distance between the lifting of his indirect fires and the engagement in close combat. It is this distance we must better address in our planning and training in peace so we're prepared for the reality of war.

Bringing fires much closer to friendly forces than currently planned is necessary for both training and combat considerations. Fortunately, the FA community, as well as the US Air Force, already has done excellent work in this direction with the development of risk estimate distances (REDs). These distances are based on calculations from the Joint Munitions Effectiveness Manuals (JMEMs) and help the commander determine acceptable risk to keep indirect fires on the enemy.

Taking into account the bursting radius of particular munitions and the characteristics of the delivery system, a RED is established associating that combination of delivery system and effects with a percentage for the probability of incapacitation (% PI) of soldiers at the given range (See Figure 1). Understanding the capabilities of his force and armed with the REDs provided in the figure, the commander determines by delivery system how close he will allow indirect fires to fall in proximity to his forces. The maneuver commander makes the decision for this risk level, but he relies heavily on his fire support coordinator's (FSCOORD's) expertise.

Echelonment of Fires. A clear understanding of the RED and an appreciation for the capabilities of each indirect fire system logically leads to the echelonment of fires. This term, however, is often misunderstood and used out of context. My interpretation is that I will employ all available indirect fire assets as close as possible to my forces, allowing them increased freedom of maneuver within close proximity to the enemy. By changing between weapons systems as the distance between the friendly force and the enemy is reduced, the maneuver force is essentially assaulting behind a "wall of steel" (offense) or continuously engaging the enemy throughout the depth of the engagement area and up to the final protective fires (FPF) and FPL (defense).

To accomplish this, several factors must be understood. First, as a maneuver commander, I must understand doctrinal terminology and clearly convey what I'm trying to accomplish and what I want fires to do in support of my plan. This is easily articulated through essential fire support tasks (EFSTs). Once my fire support officer (FSO)/FSCOORD understands the effects I want fires to achieve on the target, he translates this into ammunition and time required to accomplish the task. In conjunction with the S2 and the remainder of the staff, the FSO must gain a solid understanding of time and distance considerations for the operation—specifically, how long it will take the maneuver forces to move a certain distance.

With this information, the guidelines provided by the commander from RED tables and knowledge of the units providing the fires, the FSO can develop the sequencing of fires to obtain the desired effects. Movement rate, ammunition available, RED and desired effects taken together may lead to the use of several different indirect fire systems to accomplish a single EFST directed by the commander. An example EFST and echelonment diagram is at Figure 2 on Page 10.

The Dying Art of the Prep. Preparatory (prep) fires is a skill not practiced or understood well enough. Training budgets, safety constraints and the in-

System	Description	10% PI			0.1% PI		
		1/3	2/3	Max	1/3	2/3	Max
M224	60-mm Mortar	60	65	65	100	150	175
M29	81-mm Mortar	75	80	80	165	185	230
M102/M119	105-mm	85	85	90	175	200	275
M109/M198	155-mm	100	100	125	200	280	450
M109/M198	155-mm DPICM	210	225	250	450	450	600

Legend:

DPICM = Dual-Purpose Improved Conventional Munition

PI = Probability of Incapacitation (Soldiers Evacuated from Battlefield)

Figure 1: Risk Estimate Distances (RED) in Meters. This table was adapted from Joint Munitions Effects Manuals (JMEMs) and the article "Risk Estimate Distances for Indirect Fire in Combat" by Major Gerard Pokorski and Lonnie R. Minton, *Field Artillery*, March-April 1997.

The Scenario: This scenario outlines a basic technique that allows the infantry-artillery team to keep close fires on the enemy for the longest possible time. The ability to accomplish the commander's guidance is dependent upon many variables and each tactical situation is different.

Light Company Attack
Company has FA and Mortar Priority of Fire
Assets Available:

- 105-mm DS FA Bn
- 155-mm R FA Bn
- Bn 81-mm Mortars
- Co 60-mm Mortars

Movement rates are based on 1.5 kilometers per hour.

• Reviewing the risk estimate distance (RED) table at Figure 1 and assessing the risk he's willing to accept plus unit capabilities, the commander sets the following REDs:

155-mm – 350 Meters
105-mm – 200 Meters
81-mm – 175 Meters
60-mm – 150 Meters

The commander issues the following guidance for attacking targets on the objective:

- Destroy targets AB2000, 2005, 2010 and 2015.
- Disrupt enemy observation efforts.
- Keep suppressive fires on the objective as long as possible.

• Based on the commander's guidance, the FSO conducts battlefield calculus, taking into account:

- Movement Rate of Friendly Forces
- REDs Established by the Commander
- Fire Support Systems Available
- Rounds Required to Achieve the Commander's Guidance
- Time to Fire the Required Number of Rounds

The Result:

• The FSO determines that to meet the commander's guidance for the destruction of targets AB2005 and 2010, 155-mm FA must fire for 10 minutes and lift fires when the company is within 350 meters of the objective (155-mm RED). Based on the friendly force rate-of-movement, he determines the company will move 250 meters in 10 minutes. Therefore, the 155-mm FA fire should begin when the company is 600 meters away from the objective and conclude when the company reaches the 350 RED line.

• The FSO determines that to achieve the commander's guidance for destruction of AB2000 and 2015, 105-mm FA must fire for 16 minutes and lift the fires when the company is within 200 meters of the objective (105-mm RED). Based on the friendly rate-of-movement, he determines the company will move 400 meters in 16 minutes. Therefore, the 105-mm fires should begin when the company is 600 meters from the objective and conclude when the company reaches the 200-meter RED line.

• The FSO determines that to meet the commander's guidance for obscuration, he must fire nine minutes of 81-mm smoke and lift the smoke when the company reaches the 175-meter RED line. Based on friendly rate-of-movement, he determines the company will move 225 meters in nine minutes. Therefore the 81-meter mortars must begin firing their smoke when the company is 400 meters away from the objective and lift fires when the company reaches the 175-meter RED line.

• The FSO determines that to meet the commander's guidance for suppression of the objective, he can fire 60-mm mortars on the targets until the company reaches the 150-meter RED line. He begins firing suppressive fires with the 60-mm mortars on Targets AB2010 and 2005 when the company is 300 meters from the objective. Once the 105-mm FA lifts fires, the mortars also will place suppressive fires on targets AB2000 and 2015.

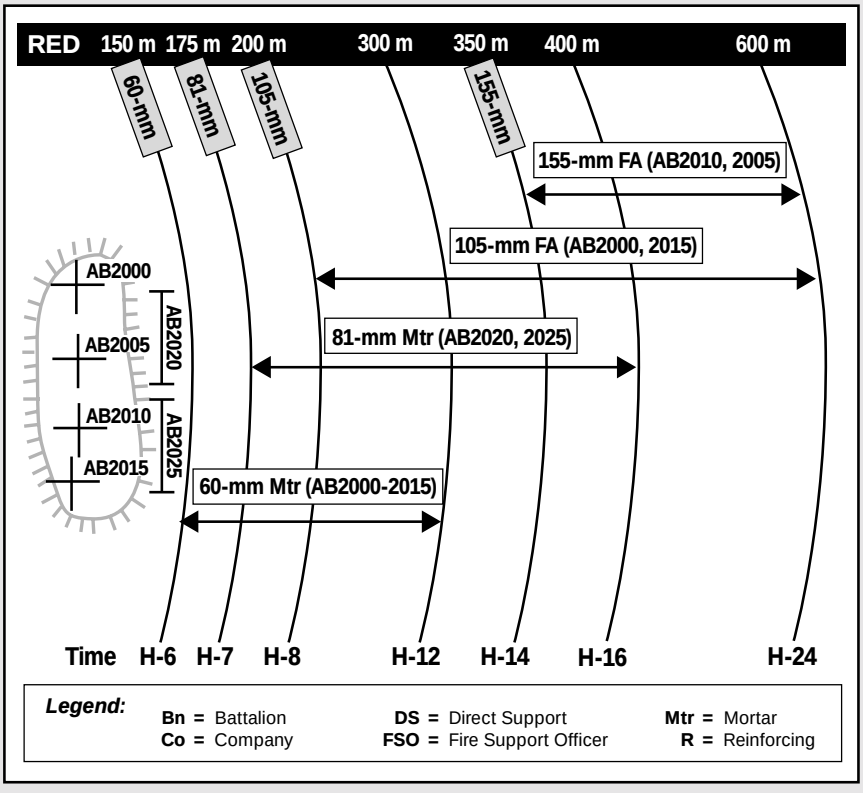


Figure 2: Essential Fire Support Tasks (EFSTs) to Echelon Fires for the Light Company Attack. H-Hour times represent the time in minutes it takes for the maneuver force to cover the shown distance and the simultaneous amount of time that indirect fire systems have to achieve the commander's intent for effects on target. For example, based on the scenario movement rate of 1.5 kilometers per hour (25 meters per minute), it will take the infantry 10 minutes (H-24 to H-14) to cover the 250 meters between the 600-meter and 350-meter RED. Simultaneously, the 155-mm artillery will have 10 minutes to deliver the desired effects on AB2010 and AB2005.

ability to visually replicate fires effectively at the combat training centers (CTCs) have led to generations of officers who have limited first-hand experience of the truly devastating effects of a sustained, high-volume fire preparation on an objective. (The same argument could be made for FPFs.)

History has shown the effects of well planned and well executed preparations fired on the objective. The battlefields of Europe remain scarred to this day by the combined effects of massive artillery fires on relatively small objective areas during World Wars I and II.

Typically, the preps we plan at the CTCs (if, indeed, we plan them at all) are short-term fires with the direct support (DS) artillery battalion using only a portion of its basic load. One contributing factor is the simultaneous use of DS artillery for counterfire and deep fires at the time fire support is needed most in the close fight. A prep of the magnitude I'm suggesting will require more rounds than a DS battalion can carry. This prep must consist of devastating effects created through a high volume of massed fires.

Field Manual (FM) 6-20-40 Tactics, Techniques and Procedures for Fire Support for Brigade Operations (Heavy) states that a preparation is an intense volume of fire delivered in accordance with a time schedule. If pushed to quantify this volume, I believe this means "destroy x 3." My fire supporter understands that fire support guidance of "destroy" equates to 30 percent casualties, so I need 90 percent casualties on a company assault objective before friendly troops arrive. (Depending on the prep target and systems firing, my fire supporter may need to fire more than "three" times the original 30 percent casualty-producing fires to cause 90 percent casualties, but he understands my intent with "destroy x 3.")

The issue becomes less of a concern from the fire support perspective and more of a concern of logistics. It will come down to a matter of trucks and projectiles. The maneuver commander's understanding of the logistics of his fire support plan is critical to its execution, and it's incumbent upon the maneuver commander to reinforce the DS artillery battalion with transportation assets if he wants an effective prep. A detailed plan for using mortars to provide smoke and illumination can help alleviate some of the logistical strain on the DS battalion.

Who Executes the Fire Plan? Future force structure changes (some of which are being felt now as we implement the Limited Conversion Division under the Army XXI model) will further impact the conduct of the close fight. Not 20 years ago, the company commander had no less than a total of 15 dedicated forward observers (FOs): nine rifle platoon 11C mortar FOs, three rifle company 11C mortar FOs and three rifle company 13F artillery FOs. The maneuver commander was trained to employ his indirect fire systems and gave specific guidance and missions to each of these observers to affect his fire plan. Over time, the 11C mortar FO positions were moved to the DS artillery battalion under the company fire support team (FIST), which coordinated their efforts.

This centralization has led to personnel reductions in the name of progress and efficiency to a point where we have become too lean. Today, a mechanized company/team commander only can expect to rely on his four-man FIST as fully trained observers to execute the complicated and detailed fire plan associated with the echelonment of fires. The loss of dedicated mechanized infantry platoon FOs is a mistake. Greater reliance on non-artillery members of the unit to call-for-fire as well as the increased effectiveness and lethality of the fire support system are supposed to address this concern.

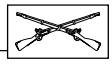
Some will argue that the platoon leader, who no longer has an attached observer, can handle the direct fire and indirect fire fight or that automated requests for fire from fighting vehicles will do this. Not so. It is important to remember that the primary mission of the platoon leader is to fight his platoon in direct fire engagements. The coordination of direct and indirect fires, while taught in the officer basic course, is difficult to accomplish under the best of conditions and may exceed the span of control of a single individual in close combat.

To further complicate affairs, when operating apart from his Bradley fighting vehicle, the platoon leader has one PRC/119 radio and one PRC/126 radio, neither of which is linked digitally to the fire support system, the mortar or artillery fire direction centers (FDCs). Relaying through the FIST after switching to the appropriate frequency is an option that significantly reduces the responsiveness and effectiveness of fires. In addition, digitized vehicles will rarely be in a position to call the fires needed for the assault, military operations in urban terrain (MOUT), clearing defiles, etc. Rifle platoons must have dedicated FOs.

The combined arms team is a proven winner on the battlefield. As we approach a new century, we must not forget this important lesson learned at the cost of our nation's treasure in lives lost and battles won. The success of one branch such as the Infantry does not come at the expense of another but, rather, as a result of our unified effort.

As the technological might of our great nation makes it possible for our forces to see and engage the enemy at greater and greater range, we must not lose sight of the close fight. We may weaken the enemy from a distance, but history has shown us time and again that to win the battle, we must close with and destroy the enemy in close, personal and brutal combat. To close that final distance under enemy fire without the suppressive and destructive effects of indirect fires is worse than folly—it's suicide.

Overwhelming, indirect fires in coordinated support of the maneuver commander's plan remains a most devastating combination for success on yesterday's battlefield and those of the future. We need our Redleg brothers to reengage in the close fight—the direct fire gunfight. *Follow Me…Hooah!*



Major General Carl F. Ernst is the Chief of Infantry and Commanding General of Fort Benning, Georgia. He also served as Assistant Commandant of the Infantry School and Deputy Commanding General of Fort Benning. He commanded Joint Task Force Somalia; served as Deputy Chief of Staff for Training at the Headquarters of the Training and Doctrine Command (TRADOC), Fort Monroe, Virginia; and was Assistant Division Commander (Support) for the 82d Airborne Division, Fort Bragg, North Carolina. He was Deputy Chief of Staff and G3 of Third Army Forward Command Post for Operation Desert Storm and the Restoration of Kuwait; Commander of the Battle Command Training Program (BCTP) at Fort Leavenworth, Kansas; Commander of the 2d Brigade, 5th Infantry Division (Mechanized) at Fort Polk, Louisiana; and Commander of the 3d Battalion (Mechanized), 10th Infantry, also in the 5th Infantry Division. He holds a Master of Arts in Public Administration from Shippensburg University of Pennsylvania.

Space + Fires = No Where to Hide In

by Lieutenant General John Costello

Nowhere are the advantages of operating from space more valuable than as applied in the Army's emerging fire support concepts. In the 21st century, fires will be versatile and agile, demanding the support of highly capable sensors and communications.

Achieving the reach, responsiveness and precision demanded of future fires will depend on the support of space systems. Situational awareness must be developed early, continuously and in detail. Sensor-to-shooter data links must be near real-time. Supporting long-range communications must be robust, reliable, survivable, mobile and secure. Together, the combination of dominant battlespace knowledge and synchronized, distributed effects will be decisive, allowing an adversary nowhere to run and, virtually, nowhere to hide.

Along with the Army fire support community, the Space and Missile Defense Command (SMDC) with its headquarters in Arlington, Virginia, is oriented on this goal. The command and its partners are working toward providing the firepower and space support required for advanced, full-spectrum land force operations.

The signature characteristic of 21st century operations will be rapid force projection into diverse threat environments. Joint forces will deploy to areas where logistics and communications infrastructure are austere. Commanders at all levels will face innovative and elusive adversaries, employing asymmetrical strategies, niche capabilities and information operations that will test flexibility. Terrain often will be urban or restrictive—a challenge to targeting, combat identification, navigation and other capabilities. Effects will be targeted in multiple dimensions of the battlespace—the physical dimensions of width, depth and height, as well as the electro-magnetic spectrum, cyber space and the human dimension. Often, land force operations will span a joint operating area where non-contiguous forces will move swiftly supported by synchronized lethal and non-lethal effects. In such conditions, space systems offer unique and highly efficient solutions to many operational problems.

The Center for Fires at Fort Sill, Oklahoma, is vigorously examining progressive ways to meet the demands of advanced full-spectrum operations. Ideas include effects-based fires packaged for particular missions that are responsive to the supported commander and delivered within compressed time windows to maximize synergy and reduce enemy reaction time. Fires will be joint and versatile. As needed, they will crush, suppress, stun, disable, isolate, operationally blind or precisely destroy designated targets.

Satellite Image. The top-down view is well suited for collecting information on the enemy, weather and terrain relevant to fires.

Some fires systems will be munitions-centric and less platform-dependent. Some munitions systems may loiter above the target area and attack on demand or perform immediate battle damage assessment (BDA).

These capabilities will require support well suited to space-based operations: sensors that collect a wide range of data and satellite communications that transport data rapidly and reliably across long ranges.

As indicated in the following discussion, space systems dramatically enhance situational awareness. They reduce an adversary's options for eluding observation during the early days of a crisis or avoiding engagement during in-theater operations.

Capabilities Triad. The Army is participating in the development of advanced sensors and communications that support this goal. A major consideration in these efforts is to ensure space architectures and systems fulfill fires requirements within the demanding operational and tactical timelines characterizing the 21st century battlefield. These requirements include target location, target identification and battle damage assessment.

There are two major paths to this objective. One is through improvements such as increased sensor power, sensitivity and availability. The other is by reducing the time required to transport information and make decisions, thereby reducing an ad-versary's reaction time. The following capabilities triad supports progress on these paths.

Comprehensive Battlespace Data Collection. For some time now, we have referred to space as the "ultimate high ground." The top-down view is well suited to collecting information on the enemy, weather and terrain relevant to fires. Space-based sensors collect data on the atmospheric weather above a target area, remotely sensing the earth's surface or subsurface, vehicles and man-made objects or conducting surveillance of space itself.

From space, sensors can detect targets early, extending the operational horizon. In particular, ballistic and cruise missiles can be detected before or immediately after launch and tracked continuously, enabling attack operations against time-critical targets or efficient battle management of interceptors defending against multiple missiles or reentry vehicles in flight.

21st Century Land Force Operations

Additionally, space-basing overcomes terrain masking and can overcome some atmospheric conditions with some systems not susceptible to the conditions that could often limit aerial operations. And space systems are non-intrusive, forward-stationed and efficient. For example, a single satellite in geosynchronous orbit remains relatively stationary over a region of the earth. There, a satellite can provide 24-hour, all-weather surveillance of a commander-in-chief's (CINC's) entire area of responsibility.

In brief, space systems sense the battlespace early and continuously, a cornerstone requirement of 21st century fires.

Universal Location and Timing Grid. The global positioning system (GPS) made its operational debut during the Gulf War. Its contributions to navigation in the featureless, expansive desert are well documented.

GPS has equally striking contributions to make to advanced fire support operations. For example, the universal reference and timing grid supports rapid laying of fires and their subsequent registration, guides munitions, enables theater-wide friendly force tracking and total asset visibility, and supports remote target designation. The highly precise timing function enables secure communications and synchronized effects delivery. Modernized GPS will have enhanced protection against electronic countermeasures and features for selectively denying an adversary's use of the system.

A reliable, instantaneous and precise reference system like GPS is needed to optimize next-generation systems, such as Crusader, and joint, distant or distributed fires. This need for precision location and timing information is particularly critical when the force is operating on a fluid, nonlinear battlefield.

Long-Range Communications. Signalers have long sought the range advantages of operating from the high ground. Space elevates that ground.

The *Army Satellite Communications Architecture Book* (1998-1999) is a military satellite communications (MILSATCOM) handbook that describes a communications satellite as "a microwave radio relay station placed on a very high 'hill'" (Page 1-1). It goes on to summarize the advantages of space-based communications, noting the benefits of range extension, direct communications between widely separated users, global relay of information and broadcast options. Within the context of fires, these advantages apply directly to planning and targeting fires, clearing airspace corridors and impact areas, guiding munitions and assessing the damage and effects of fires.

All this demands assured access, the dominant tenet of the Army's approach to space operations. Communications must be available when needed, not when they can be provided. And we are not treating the security of ground stations, communications links and satellites as "a given." In the emerging revision to the space operations concept, the Army is looking closely at its needs and contributions with respect to control of space. We also are considering the procedures and interfaces required to ensure tactical needs and force protection measures receive priority service.

SMDC Initiatives. Collectively, the data collected by space-based sensors; the instantaneous, universal reference grid provided by signals like GPS; and the long-range data transport provided by satellite communications (SATCOM) do much to illuminate battlespace, denying an adversary sanctuary. Along with Army, joint and interagency organizations, SMDC is pursuing various initiatives. Each relies on one or more of the capabilities in the space support triad as previously outlined.

Space-Based Radar—Discoverer II. Discoverer II will provide joint forces a dedicated space-based radar with a ground-moving target indicator. Additionally, it will provide synthetic aperture radar imagery and advanced product processing to supply digital terrain elevation data production.

The initiative will lead to deployment of a constellation of space-based sensors designed to detect and track targets of interest at the tactical and operational levels. The system will be day/night and all-weather capable. Scan modes will enable wide area surveillance or spot-mode reconnaissance and collection for target classification or target identification.

The joint force commander or a designated service component commander will task Discoverer II, and the system will down-link targeting data directly into theater in near real-time. In effect, the initiative will lead to the space-based deployment of a capability much like the joint surveillance and target attack radar system (JSTARS).

The Army has joined the Air Force; Defense Advanced Research Projects Agency, Rosslyn, Virginia; and the National Reconnaissance Office, Chantilly, Virginia, in the Discoverer II partnership. A proof-of-principle demonstration designed to include two satellites could begin in 2004. Demonstrations would include assured, on-demand reconnaissance; near-continuous surveillance of terrestrial objectives; coverage of areas masked to stand-off aerial platforms; theater-wide rapid acquisition and tracking of mobile, time-critical targets; and support for precision targeting and high-quality terrain mapping. During the demonstration, Army operational elements would task the sensors directly with their data downlinked into the Army tactical exploitation system.

Commercial Space Imagery—Eagle Vision II. In terms of resolution, tactically significant, commercially produced imagery soon will be available. It will include one-meter resolution electro-optical imagery that will be sufficient for identifying tactical vehicles as well as radar imagery that will be able to be taken through clouds and during darkness.

Today, imagery from commercial satellites is useful for planning operations. The launch of additional satellites will make commercial imagery relevant for executing tactical operations. According to the Institute for Foreign Policy Analysis, in the next decade or so, some 40 commercial imagery satellites are expected to be operating ("The Global Relevance of Space: Civil, Commercial, and Military" presentation by Robert Berry and Donald L. Croner at the 1998 National Space Symposium, 8 to 9 April 1998). As more systems become available, responsiveness and delivery times will improve, eventually making commercial sources useful for tactical purposes.

Eagle Vision II is a proof-of-concept system that down-links commercial imagery directly into the operational theater, processes the data to make its format compatible with Army systems and disseminates products to tactical elements, exploiting the burgeoning commercial space industry.

Eagle Vision II is an Army-National Reconnaissance Office partnership. The demonstration also will provide panchromatic, multi-spectral and radar imagery for topographic and intelligence systems. An advantage of this unclassified imagery is that it can be readily shared with partners and allies. A forerunner of Eagle Vision II supported operations in Bosnia.

Initial operations of the Eagle Vision II technology demonstration are scheduled for the first quarter of FY 2000. The prototype system will be based at the Topographic Engineering Center, Fort Belvoir, Virginia. There, the Army Space Program Office will provide operations and maintenance support, and the Army Space Command and Topographic Engineering Center personnel will operate the system.

Hyperspectral Imagery—Army Integrated Concept Team and Center of Excellence. Multi-spectral imaging is a staple of mapping and other remote sensing applications. Now, the Army is assessing the warfighting utility of hyperspectral imagery (HSI), the evolution of multi-spectral imagery. HSI is derived from data collected simultaneously in several hundred very narrow bands in the reflective and/or emissive regions of the electromagnetic spectrum. This thin slicing allows simultaneous observation of many signatures describing the object of interest. Applications of HSI techniques are being enabled by advances in computing, data communications and information technologies.

Demonstrations on aerial platforms are ongoing, and HSI technology has shown promise in identifying camouflage, detecting mines or obstacles, conducting BDA, mapping terrain, recognizing targets (aided or automatic) and other battlespace characterization tasks. In the near term, HSI will be most valuable in wide area change or anomaly detection. This mode operates in near real-time and cues other sensors that then characterize and identify objects of interest. In the future, space-based, on-board processing capabilities will be developed, and the signature database will support near real-time identification of high-payoff targets (HPTs).

Eagle Vision II (top) and it's prime mover and trailer being off-loaded from a C-130.

Ongoing HSI activities include analysis conducted by an Army integrated concept team. Currently, the team is assessing the doctrine, training, leader development, organizational and soldier implications of the fielding of hyperspectral imaging systems. In this regard, target recognition and terrain characterization are considered two of the more promising applications of an HSI-based system.

In addition to the integrated team, the Army is establishing a center for HSI technology development—the Center of Excellence in Spectral Sensing. Initial membership includes the Missile Defense and Space Technology Center at Huntsville, Alabama; the Night Vision and Electronics Sensors Directorate at Fort Belvoir; the Army Research Laboratory at Aberdeen Proving Ground, Maryland; and the Topographic Engineering Center.

Long-Range, High-Capacity Communications—Lasercom. The agility, reach and precision lethality of future fires demands high-capacity, long-range communications. They must be secure, resistant to jamming and difficult to detect or intercept. The Lasercom science and technology objective (STO) is developing such a capability. It is managed by the Missile Defense and Space Technology Center and is advancing toward its conclusion as an STO in FY 2000. The center is demonstrating the potential to move large amounts of information fast enough to have a tactical operational impact. Lasercom is intended to meet data needs for imagery, video and other tactical applications.

The current Lasercom program involves a space-to-ground demonstration of store-and-forward techniques passing medium-wave infrared and HSI data. The demonstration is scheduled for late 1999. Data rates of up to 1.2 gigabytes per second (Gbps) (sufficient for imagery and video) will be demonstrated, using two portable ground ter-

minals and a low-earth orbit satellite. The technology uses laser diodes for transmission, tracking and alignment; low-noise avalanche photodiodes for collecting data transmissions; and charge-coupled device arrays for tracking and alignment. Advanced development will address high-bandwidth potential in excess of 10 Gbps.

In addition to high bandwidths, Lasercom's narrow-beamwidth and low power requirements provide radio-silent operations, making it ideal for covert operations. The technology also offers unlimited and unregulated spectrum with virtually no interference, a significant advantage over radio frequency (RF) systems.

On an unmanned aerial vehicle (UAV), Lasercom can enable near real-time target data down-links. Furthermore, the ability to cross-link large amounts of data between satellites can enhance exploitation of national assets for tactical applications. Lasercom will lead to techniques for speeding transmission of sensor-to-shooter data, terrestrial communications and the rapid coordination required for effects management.

Battlespace Characterization—Battlefield Ordnance Awareness (BOA). Capabilities developed under the BOA STO will provide near real-time reporting of artillery fires, rocket launches, explosions and other ordnance events. BOA will identify the location, time and type of ordnance. Tactical applications include targeting for counterfire, BDA, sensor cueing and overall situational awareness. From space, BOA will support counterbattery surveillance in addition to other fire support-related tasks. Options for nearer term fielding on aerial platforms are also under development.

BOA employs fast-framing infrared sensors. The signal-processing suite discriminates among various types of ordnance in near real-time. With a direct link, shooters will have targeting data on enemy artillery and missile launch sites within 10 seconds with a target location error (TLE) of less than 50 meters.

The Missile Defense and Space Technology Center is developing BOA under the overhead passive sensor STO and preparing it for transition to advanced concepts technology demonstration (ACTD) status. Currently, a prototype sensor system supports experimentation and signature data collection, and an airborne test is scheduled for the near term. To populate the signature database, ordnance collection has begun on a variety of US and foreign targets.

Beyond-Line-of-Sight Reporting and Tracking (Grenadier BRAT). As the distribution of fires increases, clearing them will be much more complex. Consider the task of clearing fires in a division operations area that may be 120 kilometers in width and 200 kilometers in depth. One aspect of clearing fires is determining the current location and status of friendly forces beyond line-of-sight. Today, these forces are likely to be aviation or other special operations forces. In the future, other maneuver forces routinely will operate deep and dispersed throughout the battlespace.

Grenadier BRAT supports this mission need. It's a small, lightweight terminal that can be mounted on a wide range of Army vehicles as well as carried by the individual soldier. Under development as a warfighter rapid acquisition program, Grenadier BRAT addresses the need for theater-wide situational awareness to include the precise location and status of US elements and friendly forces.

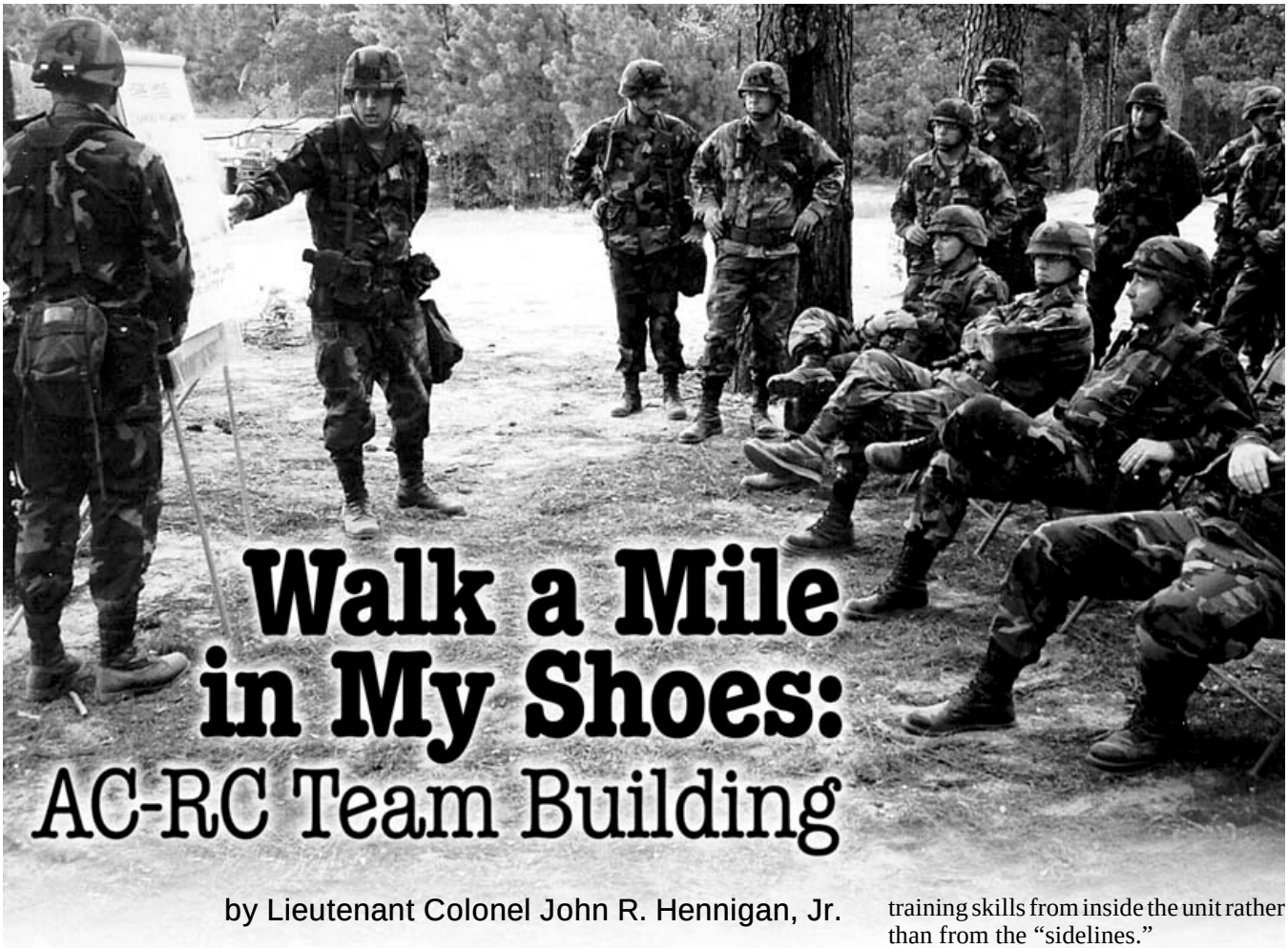
The system employs integrated satellite communications and GPS. A soldier operating Grenadier BRAT can burst-transmit the GPS location, time and a brief status report. Once integrated into the Army battle command system (ABCS), this data can be automatically disseminated and integrated into systems such as the advanced Field Artillery tactical data system (AFATDS).

The well established partnership between the Army space and fires communities is being leveraged and tailored to support full and seamless integration of space and fire support operations. One focal point is the full-time Space and Missile Defense Battle Lab liaison officer in the Depth and Simultaneous Attack Battle Lab at the FA School, Fort Sill. Elsewhere, the partnership involves the Space Technology Directorate at Huntsville; the Space and Missile Defense Battle Lab at Huntsville and Colorado Springs, Colorado; the Force Development and Integration Center in Arlington, Virginia; as well many organizations in the Army's fire support community. Collectively, these organizations are working on space support initiatives such as HSI development, GPS anti-jam requirements, development of the effects coordination center (ECC) and the Army Space and Missile Defense War Games.

Grenadier BRAT (Mounted Version). The BRAT is a small, lightweight terminal that can be mounted on a wide range of Army vehicles or helicopters as well as carried by the individual soldier.

Space is not a panacea. Alone, space systems cannot deny an enemy all sanctuary. Furthermore, obtaining funding to build land force requirements into multi-agency space systems and architectures often involves fierce competition. Nonetheless, space is critical to the forward-looking warfighting concepts emerging from Fort Sill, and one of the top priorities at SMDC is ensuring space is fully exploited to hone the cutting edge of future fires.

Lieutenant General John Costello commands the US Army Space and Missile Defense Command and US Army Space Command from his headquarters in Arlington, Virginia. In his previous assignment, he commanded the Air Defense Artillery Center and Fort Bliss in Texas. Other key assignments include serving as Director of the Roles and Missions Directorate of the office of the Deputy Chief of Staff for Operations and Plans in the Pentagon; Assistant Division Commander (Maneuver) for the 1st Armored Division in Germany; Commanding General and, previously, Chief of Staff of the 32d Army Air Defense Command in Germany; and Commander of the 35th Air Defense Artillery Brigade in I Corps at Fort Lewis, Washington. He also commanded the 2d Battalion, 59th Air Defense Artillery in the 1st Armored Division and two batteries: one in the 8th Infantry Division (Mechanized) in Germany and one in the 82d Airborne Division at Fort Bragg, North Carolina. He holds a Master of Arts in Foreign Affairs from the University of Virginia and a Master of Military Arts and Science from the Command and General Staff College, Fort Leavenworth, Kansas. He's also a graduate of the Senior Executives in National and International Security Program in the JFK School of Government at Harvard University.



1-141 FA at AT 98, Fort Polk, LA

Walk a Mile in My Shoes: AC-RC Team Building

by Lieutenant Colonel John R. Hennigan, Jr.

As an active-duty lieutenant colonel, I commanded the 1st Battalion, 141st Field Artillery, Louisiana Army National Guard (ARNG), from October 1996 to October 1998. The 1-141st FA is in direct support (DS) to the 256th Infantry Brigade, an enhanced separate brigade.

Early in my command, I figured out how little I knew about the National Guard. For example, I finally had to ask who the "TAG" was—well, he's *only* "The Adjutant General" of the state and a close parallel to a division commander.

My enhanced separate brigade was similar to other brigades I'd served in, except there was less time available to train in the field. The operations order (OPORD) production and briefing process and our tactical standing operating procedures (TACSOP) were similar to what I experienced in active component (AC) brigades. Although I had holes in my knowledge of National Guard operations, I had the military tools and experience to contribute to the command. So for 24 months, I walked a mile in the shoes of an ARNG battalion commander, and what an education it was.

This article relates some of my experiences during my ARNG battalion command and offers suggestions for possible improvements. Although my experiences are in just one unit of the 50 states that have ARNG units and in a unit performing a relatively unique mission, perhaps other National Guard units can extrapolate from my suggestions to help meet challenges. Just as I was ignorant about ARNG operations until I worked closely with the National Guard, I'm confident many active duty readers will learn more about National Guard operations from this article.

In this article, I make several personnel and training suggestions that will cost a great deal of money. But with more than two-thirds of the Army's Field Artillery in the National Guard, I suggest stepping "outside the box" and making innovative changes to the way we currently do business rather than taking a "business as usual" approach.

Integration. The Ground Force Readiness Enhancement (GFRE) Plan is not measuring up to its full potential. It needs to truly integrate the AC soldier-trainers into the RC units and use their training skills from inside the unit rather than from the "sidelines."

Briefly, the GFRE, as mandated by Congress, provides 5,000 AC soldiers to train RC units. The plan generated the training support brigade (TSB) structure with its training support battalions (TSBns) that support priority RC units in their regions.

In the case of the enhanced brigades, each has its own TSBn in residence with the enhanced brigade. That translates to an FA team (formerly called a resident training detachment, or RTD) from the TSBn that works in the same armory with and helps train the FA battalion that's DS to the enhanced brigade.

The overall goal of the plan is worthy: boost the power of the RC's 39 days of annual training using AC soldiers who will, in turn, learn more about the RC units. Although our trainers were excellent, too often, they were seen as critics "on the sidelines" rather than members on the battalion "team" and deployable with us in the event of war.

Many of the problems associated with the "non-integrated" AC training team were due to its organizational structure—not due to the quality or dedication of the team. In addition, altering the

structure can teach the AC soldiers much more about their sister RC units.

• The RC battalion commander needs the flexibility to plug holes and assign AC soldiers duties on the battalion staff (as approved by the TAG). During this period of declining full-timers–Active Guard/Reserve (AGR) strengths—many RC commanders have an urgent need for, say, a qualified battalion S1 or assistant S3 or a supply sergeant. (An experienced supply/maintenance sergeant can eliminate multiple unit problems *before* they become problems and save the taxpayer and battalion money and time, which can be better spent on training.) The intent is to leverage the training support soldiers to take advantage of their strength to offset the declining AGR strength. In addition, training assets would be used better and increase the contributions of each soldier focused on the needs of the command.

The S3 shop is one likely place the RC battalion commander would use such AC assets. What better place to influence training than from within the S3 shop?

• The training support soldiers only can execute training based on the guidance of the ARNG battalion commander, which can limit their training effectiveness. Depending on the level of participation in the planning process, these trainers end up giving well targeted assistance or minimal, unfocused assistance. Integrated into the battalion, these same trainers routinely can suggest what needs to be trained and help implement the process.

With the frequency and quality of the training assistance dependent on the commander's guidance, the levels of training vary widely from state to state, even though the mission essential task lists (METLs) of the units are the same.

• The integrated AC soldiers should be rated by the National Guard chain of command. One added benefit would be to teach AC soldiers to read RC efficiency reports and discern what's important and what's fluff. This is significant because RC officer records appear at the same promotion and school boards as AC officers, and board members would be better able to give both components' candidates a more discerning look.

The ultimate intent of the GFRE plan is to improve RC combat readiness. That is best achieved by men who are "actually in the arena," not on the bench.

One last training point. Each RC unit needs to be associated formally with an AC unit for training and mentoring. As the FA battalion commander DS to an enhanced separate brigade, I had no senior artillery commander—ARNG or AC division artillery or FA brigade commander—to whom to turn for technical and tactical FA training or otherwise for mentoring. RC battalion commanders need that support to be prepared to deploy and work closely with any senior FA command.

OPTEMPO. Well meaning friends speculated that commanding an ARNG battalion would allow me much more personal time—not so. The team works five days a week and, on the average, three out of four weekends. No, you are not in the field as often, but you are definitely on the road traveling to meetings more often. Part of the operations tempo (OPTEMPO) is driven by declining AGR strength.

The natural state of AGR is that you are not overseeing someone else's work but, in fact, are the soldier doing the work, making the plans and typing the products. Currently, for planning purposes, only 40 (actual AGR strength is 27) soldiers out of 730 modified table of organization and equipment (MTOE) strength are full-time. I would suggest that about 10 percent of MTOE strength should be AGR.

Training Level. Currently the National Guard trains at the platoon level. This is about right—the goal must be realistic.

Most AC brigades I have served in work 150 to 200 days a year in the field, normally with the goal of training efficient companies/teams (sometimes task forces) at the end of the train-up period. We are fooling ourselves to think that 39 ARNG training days can equal 150 to 200 AC training days and that, regardless, both can meet the same training standards.

The RC training focus should be at the crew level and on the battalion staff. The crews should focus on gunnery with some maneuver training. The battalion staff must be exercised in the orders process continuously using computer simulation. At least once a year, the staff needs to conduct the orders process at Fort Leavenworth, Kansas, and experience the National Training Center (NTC) Leadership Training Program (LTP) at Fort Irwin, California.

This battle staff training should take about 12 months to complete and include rehearsals, rock drills, OPORD production and briefings, and TACSOP validation. The hardest intellectual piece is the orders process, and the staff must be trained to standard before mobilization. By approaching training this way, the ARNG battalions will learn the basics and receive continuous reinforcement training.

With soldiers trained in basic warfighting skills, able to operate within their crews, along with an efficient staff, a brigade should easily be ready to transition to active campaigning within 90 days.

National Guard Training Center (NGTC). The Army needs to establish an NGTC. This combat training center (CTC) would be modeled after the NTC with some differences. One difference would be no brigade-level fight. The approach would be to crawl, walk and then run with, maybe, a battalion-level fight. Crew certification/gunnery would have to be established first before moving up to the next level: platoon operations. At the same time, the battalion and brigade staffs could go though a series of orders drills to build their capabilities.

If units had more time to train on gunnery drills in inactive-duty training (IDT), then units could move more quickly into battalion-level operations. That would probably mandate a three-week AT and maybe more IDT days during the year.

Like the NTC, the NGTC could draw its equipment from the training site, saving transportation costs. Also, having AC and RC observer/controllers would help establish a common training base for the entire force.

Rotations at the NGTC would not preclude rotations at other CTCs—only prepare the RC units for higher level operations that are integrated with AC units.

Promotions and Personnel. The current system of the National Guard promoting soldiers who are not Department of the Army (DA) board selected should be reconsidered. For example, currently if a TAG has a major's billet open, he can promote a non-DA selected captain into the major's billet. This is called a "unit vacancy promotion." All officers need to have an equal shot at promotion, based on being selected for promotion by a DA promotion broad and the needs of the organization. The current system breeds suspicion where personnel may fear that others get promoted due to considerations other than professional capabilities.

Another personnel issue—using non-deployable Federal/state technicians (mechanics) in deployable units is not "working smart." AGR soldiers working next to union-protected technicians creates dissension in the ranks. All full-timers need to be the same status: AGR. If the unit is non-deployable, such as the state headquarters, technicians will work.

Military Education. For the most part because of civilian employment, RC soldiers must attend two-week schools. But in some cases, the soldier (particularly AGR) can attend AC schools—that should be the preferred course. The AC courses tend to be longer and cover the subjects more thoroughly.

The cost of the AC schools should be paid by the AC (annually funded for RC schooling); in this way, we'll encourage soldiers to attend AC schools and create a better educated force. By doing this we are leveraging education to create more combat power with a shrinking force.

The military educational system needs to include required instruction on the RC for all the students, not just for the Reservists or National Guardsmen. To be a truly integrated force, the AC must be exposed to and develop an understanding of how the RC works.

Junior Colleges and Second Lieutenants. National Guard units are being punished for doing the "right thing" with their second lieutenants who are working on completing their degrees. When a graduate of a junior college (for example, the New Mexico Military Institute) gets his commission, he has to join a National Guard unit—even as he transfers to a four-year college to complete his degree. National Guard units are providing leadership and professional growth opportunities to these young second lieutenants, as the Guard should, but they cannot be accessed till degree completion and, therefore, cannot be sent to the officer basic course (OBC).

The punishment for the Guard unit in terms of military occupational specialty (MOS) qualified strength reporting should be neutered.

Family Support. Within the National Guard, family support goes way beyond having an active officers' wives' club, receiving pre-NTC briefings or attending coffees. Family support affects recruiting and retention. What better place to recruit future members than from the homes of current National Guard soldiers? The group may include retirees; moms, dads and other relatives; and civilian employers of traditional "M-Day" soldiers. Due to the nature of the Guard, family support becomes much more of a community effort.

In peacetime, the family support group teaches family members what benefits are available to them. The active members of a family support group become the core that supports the soldiers' wives upon mobilization.

America's Image of Her Army. Shortly after I took command, a young ARNG officer asked me how long before I'd get my "real command." When I told him that 1-141 FA was my *real* command, he was surprised.

I took great pride in commanding 1-141 FA, Louisiana Army National Guard—as fine a group of soldiers as I've ever served with. And the time and effort given and dedication displayed by National Guard soldiers showed their love of country and their willingness to bear arms to defend her.

But his question exposes an interesting point of view. Some RC officers and soldiers have accepted the notion that they're second-class soldiers. The part-time RC is clearly different than the full-time AC, but they are still skilled soldiers and dedicated Americans. Considering they have only 39 days per year to train, have all the additional demands of civilian careers (many have had to put those careers "on hold" for deployments) and often drive great distances for IDT, they really are amazing soldiers.

The AC must remember that Americans see their Army by watching their local National Guard or Reserve unit. The truth is, that in times of peace, American's don't think about Fort Hood, Fort Bragg or Fort Drum—only their local military.

Huertgen Forest—Never Again. I read Cecil Currey's book *Follow Me and Die: The Destruction of an American Division in World War II* and was stunned. The book recounts a World War II battle in the middle of a large forest in Belgium. The site of the battle is on the narrow, winding Kall trail along a steep gorge with a sheer drop on one side, a trail that occasionally switches back. The objective was to cross the gorge and attack the German army on the other side. To take that trail, the US forces had to leave their tanks and most anti-tank weapons behind and then face a German combined arms force with tanks.

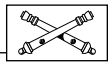
American casualties in the Huertgen Forest were approximately 30,000 with about 10,000 of them due to battle exhaustion and disease cases. Nine regiments were destroyed, and five divisions suffered. Our 28th Infantry Division was decimated.

As a captain stationed in Germany, I spent about six months consumed by the battle—even walked the Kall trail and touched the large boulder that desperate men wrenched anti-tank vehicles around. I walked the gorge pass through the switchbacks into the German town of Schmidt.

At the time, I did not realize the 28th ID was Army National Guard—or, at least, did not give the information special merit. It was the US Army that fought and lost in Huertgen Forest.

My analysis was that the catastrophe on the Kall trail was the result of American arrogance and a disconnect between senior leaders (division and higher) with the realities of the battle front. The battle losses were predictable due to the restrictive terrain, weather conditions that limited American air support, US troops forced to fight under degraded conditions and repeated poundings of the German artillery from a position of advantage. Confused and poorly trained, the commanders combined with their ill-trained battle staffs to contribute to the deaths of brave American fighting men. Huertgen Forest—Never Again.

We owe it to our soldiers to ensure they are ready—that we are an integrated fighting force—for our country's next "call to arms."



Lieutenant Colonel John R. Hennigan, Jr., commanded the 1st Battalion, 141st Field Artillery, Louisiana Army National Guard, the "Battalion Washington Artillery" of New Orleans. He was the first active-duty commander of an ARNG battalion in recent history. Currently, he is a Systems Integrator for the Army Tactical Missile System (ATACMS) and Preplanned Product Improved BAT submunition and the Army's lead Project Officer for Joint Attack Operations in the Office of the Deputy Chief of Staff for Operations and Plans at the Pentagon. Also at the Pentagon, he was Senior Operations Officer at the National Military Command Center, J3 Directorate on the Joint Staff. He served as a Brigade Fire Support Officer for the 1st Brigade, and Battalion Executive Officer for 3d Battalion, 82d Field Artillery, both in the 1st Cavalry Division, Fort Hood, Texas. Lieutenant Colonel Hennigan also commanded A Battery, 3d Battalion, 21st Field Artillery, 5th Infantry Division (Mechanized) at Fort Polk, Louisiana.

"Shooting Guide" for Digital Photos

Read Me *First*

If you call the staff of *Soldiers* magazine, which specializes in top-quality photographs, and ask them if they accept digital photos, the response will be, "Only as a *last* resort." The digital photos your military magazines are receiving from shooters in the field, with some exceptions, are unpublishable.

The revolution of "the battalion digital camera" now in progress allows units instantly to download action photos of their latest training exercise to briefing slides, home pages and reports or to make inexpensive color prints of awards ceremonies for espirit de corps distribution to family members—all excellent applications. But this revolution is also a magazine's publishing nightmare.

The day will come when all units have inexpensive, top-quality digital cameras that can store and download multi-megabyte (MB) high-resolution photos from the field and email them to us in near real-time. But not today.

When sending photos to *Field Artillery*, our first choice is for you to mail or overnight us glossy prints of clear color (preferably) or black and white photos from traditional cameras. This allows us to scan in and work the photos in our software designed for publishing and ensures each electronic image has the quality of resolution we need: a minimum of 300 dpi.

However, if you *must* send us electronic photos, please read on to save us both a lot of time and trouble.

1. Shoot the picture. When taking a picture, set the camera on the largest frame (minimum of 5x7 inches) and the highest resolution the camera will allow. Do *not* shoot a small photo on a low-resolution setting so you can save data space on your camera's storage capacity for more photos at a shooting. You will save data space and be able to shoot more photos at a time, but you also will eliminate the resolution we need to publish any of your photos.

The lowest resolution digital cameras shoot is often called "standard" and produces images of a quality only good enough for web sites. The best resolution settings usually are called "high," "super fine" or "ultra-high"—pick the max setting for your camera.

This will create large photos and files. A color photo should result in a file of at least 3.5 MB and grayscale photos of at least 1.5 MB. There's no hard-and-fast rule for image size, but generally, the bigger the file, the better the photo.

If your camera gives you the option, shoot the photo as a PC tif file. (We convert all our photos to tif format for editing and layout; this format avoids our translating your file to tif and ensures the original quality of your pictures.)

We also accept jpg files. When saving a file as a jpg, choose a "Quality" setting of "maximum" or "10" and the "Format Option" of "baseline (standard)."

2. Download raw data. When downloading the file from your camera or its removable storage card to another drive, save the image in raw data. Do *not* manipulate the data (resize or try to edit the image). Let us take care of that.

And, don't think you can "beef up" the resolution of the small, low-resolution photo you shot. For example, shooting an 800 kilobyte image with a $700 camera and enhancing the dpi until the file size is 4 MB will *not* make it a clearer picture, only a larger image (bigger dots, not more of them).

3. Send us the file. By following the first two steps, you'll have a large file for each photo. One way to get your photos to us is to send them on a 100-MB Zip disk or a CD. In some cases, a jpg file will fit on a 3.5 floppy—but do *not* resize the jpg photo to make it fit. A general rule is that if the photo file will fit on a floppy, it won't work for us.

Our magazine's email will accept 5 MB or smaller per message: famag@doimex2.sill.army.mil. Do *not* try to send us large images via email; Fort Sill file servers block any email message larger than 5 MB.

You may be able to send us several photos via email, one at a time. Be sure *each* message with a photo attached includes a caption of who's doing what in that image and the article/author for which it is intended to illustrate.

So, mailing or overnighting electronic photo files larger than 5 MB to us may be the best option. However, if push-comes-to-shove and we need your large-file electronic photos from across the world (Korea, Germany or Okinawa) ASAP, we can go out on the Internet and pick up the images you've uploaded on a special Fort Sill site. Email or call us at DSN 639-5121/6806 or commercial (580) 442-5121/6806, and we'll make the arrangements.

As always, a blurry photo of poor composition taken with a digital camera set at its largest frame and highest resolution will still be a bad photo. Except for a few TSC photographers with their high-speed digital cameras, we know our shooters are not professionals—nor are our valued authors. You are soldiers and Marines (even better, mostly Field Artillerymen) telling the story of the best branch and best Army and Marine Corps in the world. Help us do justice to your articles by following these instructions for taking digital photos. **FA Bulletin**

14th Marine Regiment
The Marine Reserve Artillery

by Majors Brian J. Kramer and Alvin W. Peterson, Jr., USMC

It was early morning, 22 February 1991, when the words "Fire mission!" disrupted the breakfast of the Marines of Battery M. With those two words, Battery M began its first combat mission in Southwest Asia.

Just a few months prior, these Marines had been college students, policemen and bankers. They were also Marine Reservists in Battery M, 4th Battalion, 14th Marines, in Chattanooga, Tennessee. On 4 December 1990, Battery M was activated and these "citizen" Marines successfully deployed and participated in combat operations during Desert Storm.

Marine Corps history is replete with examples of reserve units such as Battery M that have been mobilized and, within a matter of weeks, successfully conducted combat operations.

This article examines the system that enables the Marine reserve to respond with such great success during times of national need. In particular, it examines the role of the inspector and instructor (I&I) system in the success of these units.

Organization/Mission of Marine Forces Reserve. The Marine Forces Reserve (MarForRes) is structured like other Marine Air-Ground Task Forces (MAGTFs). The command element (force headquarters) is in New Orleans, Louisiana, with the headquarters of its three subordinate commands: Fourth Marine Division (Ground Combat Element, or GCE), Fourth Marine Air Wing (Aviation Combat Element, or ACE) and Fourth Force Service Support Group (Combat Service Support Element, or CSSE). The chief difference between MarForRes and other Marine force headquarters (Marine Forces Atlantic and Marine Forces Pacific) is that MarForRes forces are spread all over the United States while the other headquarters are regionalized.

The mission of MarForRes is simple and straightforward: Provide combat-ready forces to augment and reinforce the active Marine Corps upon National Command Authority (NCA) orders to mobilize. Additional peacetime missions, such as community support activities and the reduction of active duty operations tempo, do not mask the real reason a Marine Reserve exists—to provide additional ground, aviation and CSS combat forces for the nation's next war.

Organization of the 4th Marine Division. The major subordinate commands of the 4th Marine Division are organized in similar fashion to the regiments and separate battalions of the active duty divisions. All three organic maneuver regiments—the 23d Regiment in San Bruno, California; the 24th Regiment in Kansas City, Missouri; and the 25th Regiment in Worcester, Massachusetts—are light infantry forces. The 4th Tank Battalion is based in San Diego, California, with tank companies in San Diego; Yakima, Washington; Boise, Idaho; and Riverside, California. The 4th Combat Engineer Battalion provides organic engineer support. Finally, the 14th Marine Regiment, with its Reserve Artillery Headquarters in Dallas, Texas, provides artillery support. The 14th Marines have five battalions of artillery as shown on the map on Page 22.

These units are undergoing a major transformation. The tables of organization (T/O) of both the reserve unit and the small active duty I&I staff that supports the reserve unit are in the process of being combined into one T/O. This will make all Marines part of the same unit. Designed to better foster a spirit of teamwork, T/O integration presents leadership challenges to both the reserve and active components of the MarForRes team.

Officer Leadership. The reserve officers who lead the Marines of the 4th Marine Division, as well as all others in the MarForRes, are unique among the reserve officers in the Department of Defense. All Marine officers of the 4th Marine Division have served a minimum of three years on active duty. These officers attend The Basic School (TBS) in Quantico, Virginia; attend their respective military occupational specialty (MOS) schools; and then serve an average of two to four years of active duty before reporting to reserve units.

During this period as company grade officers, these leaders serve beside officers who will one day be their active duty counterparts. This commonality, established early in an officer's career, is one aspect of the active-reserve relationship that benefits the entire Marine Corps. It's rare, for example, when the officers of a reserve artillery battalion are not familiar with the leaders of an active regiment from their earlier active service. The degree to which this facilitates the integration of the active and reserve components cannot be overstated.

Within the 4th Division, reserve officers serve as commanding officers at the company and battalion levels while active duty officers command at the regimental level. The reserve commander has a counterpart I&I within the unit who provides support and guidance in virtually every area imaginable. The leadership dynamic in a reserve unit is totally dependent on the ability of the reserve commander and the I&I to unselfishly dedicate themselves to their unit. If one attempts to dominate the other, then the unit will fail.

Organization/Manning of USMCR Artillery. The 14th Marine Regiment provides the Marine Corps Reserve five battalions of artillery to reinforce the active forces. The T/Os and tables of equipment (T/Es) of the reserve artillery batteries and battalions are virtually identical to their active duty counterparts. The battalions are structured in three, six-gun batteries. All have the M198 towed howitzer, and all are manned with the requisite liaison sections for the battalion to perform any standard tactical mission. (The liaison sections are the equivalent to the Army's

fire support officer, or FSO, and his fire support teams, or FISTs.)

The enlisted Marines of the regiment come from varied backgrounds. Many reserve enlisted Marine artillerymen served periods on active duty before joining the reserves. Others enlist directly into the Marine Corps Reserve. Still others come from a myriad of military occupational specialties from within the active and reserve establishment. Due to employment or educational requirements, these Marines may have moved to geographic locations in which there are no Marine reserve units that require their MOS. If accepted into the 14th Marines, these Marines must then become MOS-qualified within a specified period of time. This is a serious training issue that demands constant command attention in the Marine reserve artillery.

On-hand personnel strengths within the batteries of the 14th Marines are affected by demographics to a greater degree than their active duty counterparts. Reserve units in less densely populated areas of the country face the greatest challenge in maintaining the capability to deploy all howitzer sections during training. To counter this, the regiment has in the past moved howitzers from one geographic location to another. Under this arrangement, a battery in a remote location may be left with less than its authorized strength in howitzers and personnel. However, the regiment can maximize its training by getting the howitzers to where the crews are. Within the Marine reserve artillery establishment, commanders and I&Is have the room to be creative in finding ways to accomplish training.

Active Duty for Training (ADT) Cycle. The battalions of the 14th Marines attempt to conduct most of the mandated training (weapons qualifications, gas chamber exercises, swim qualifications, etc.) during drill weekends over the course of the year. This leaves the two-week ADTs available for sustained artillery operations.

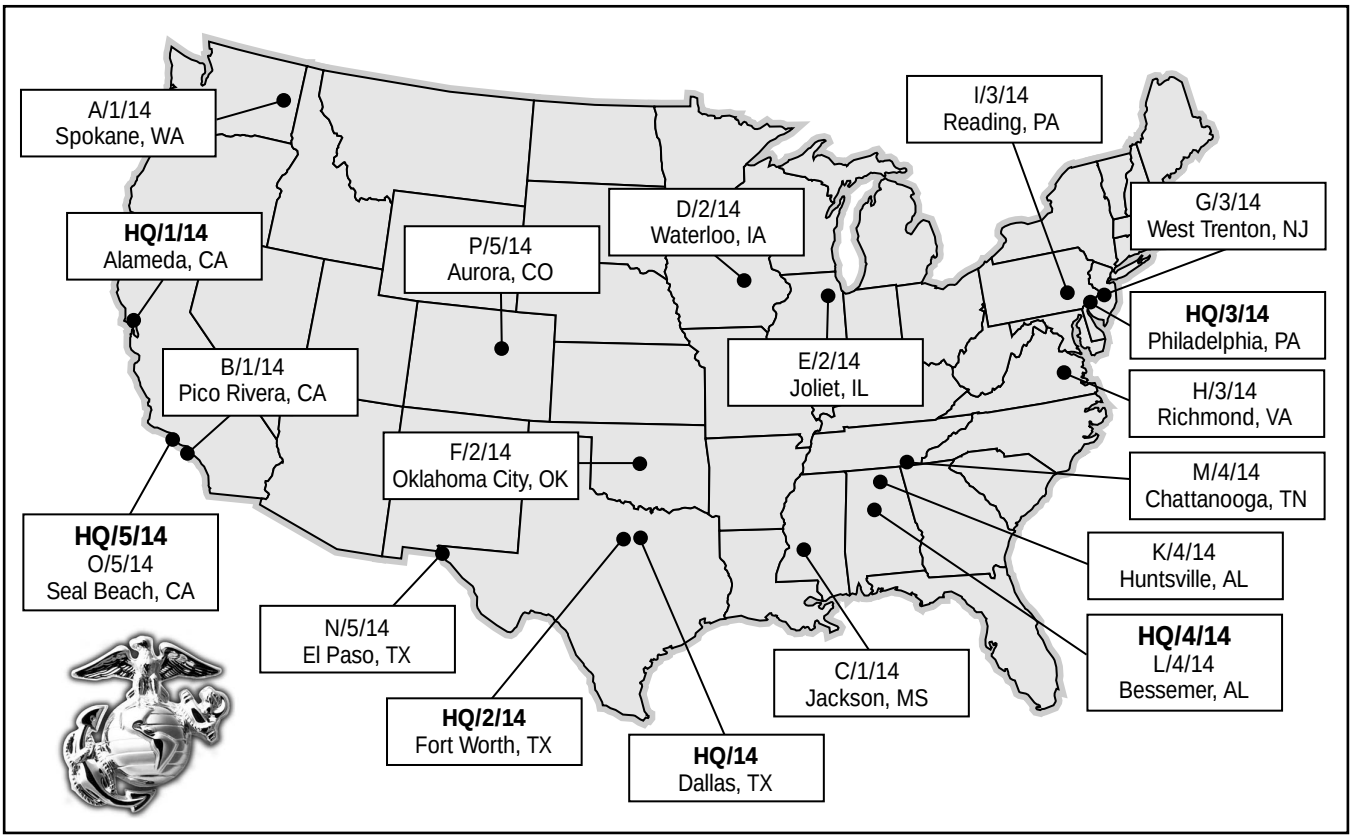
A three-step, three-year cycle has been established that maximizes the training in the perishable skills of a direct support (DS) artillery battalion; provides for travel to different parts of the country and overseas (a key morale issue to reserve Marines); and most importantly, maintains a link between the battalions of the 14th Marines and the active duty regiments.

The cycle begins with a battalion attendance at a combined arms exercise (CAX) at the Marine Corps Air Ground Combat Center at Twentynine Palms, California. The CAX lasts for 14 days (compared to 28 for the active force) and offers the best combined arms training available to the infantry regiments and supporting arms units of the 4th Division. Reserve artillery units can conduct training in support of light and mechanized infantry forces as well as with the fixed and rotary wing aviation units assigned to the reserve MAGTF.

During year two, the reserve artillery battalion may conduct counterpart training with one of the active duty regiments located in the continental United States. The 10th Marine Regiment in Camp Lejeune, North Carolina, and the 11th Marine Regiment in Camp Pendleton, California, conduct bi-annual live-fire exercises in which they frequently train with reserve artillerymen. When the battalions of 14th Marines conduct this training by sending firing units to Fort Bragg, North Carolina (training with the 10th Marines), and Twentynine Palms (training with the 11th Marines), they train for the scenario for which they are most likely to be mobilized: firing in reinforcement of the active regiments.

The last year of this cycle might find a reserve artillery battalion conducting

Btry B, 1st Bn, 14th Marines



one of several events mandated by the regimental headquarters. A battalion (minus) deployment to Norway is one such possibility. This cold-weather training supports an all-reserve MAGTF that exercises equipment staged for contingencies in Northern Europe.

Units also attend ADTs in which the regimental headquarters and up to two battalions of reserve artillery deploy to sites such as Fort Sill, Oklahoma, and Fort Carson, Colorado, for live-fire training. During these ADTs, the battalions normally undergo a Marine Corps Combat Readiness Evaluation (the Marine Corps equivalent of an Army Training and Evaluation Program, or ARTEP).

Marine I&I System. Perhaps the single biggest difference between the Marine reserves and the other services is the investment of active duty structure to support the reserve units, referred to as the Inspector and Instructor staff. Battery M has an active duty staff of 12 Marines and one Navy corpsman. Of the 12 Marines, four are reservists while the rest come from the active component of the Marine Corps.

The senior active duty Marine at the battery level is a captain or a major, normally a former battery commander. His role is to mentor the officers and senior enlisted of the unit. To assist him he has a first sergeant (E-8) and a staff of senior enlisted Marines considered experts in their MOS. This staff provides administrative and maintenance support to the battery. More importantly, these Marines are a source of experience for the reserves to call on during training. In some cases, the active duty Marines will hold positions of leadership in the reserve unit.

This team of experienced artillerymen makes the Marine I&I system an effective program that facilitates working with reservists and enables a level of experience that would not normally be expected in the reserves.

The I&I staffs at the battalion and regimental levels provide the same kind of support and base of experience to the reserves in those organizations. The Marine Corps has made a conscience decision to place a significant active duty staff at each level of the reserve organization to provide a foundation of experience.

The Inspectors and Instructors at reserve artillery battalions (as well as the commander of the 14th Marine Regiment) are screened for assignments by the same boards that select their peers for command of active duty artillery units. Marine Corps assignments in support of reserve units are competitive assignments. The Marine Corps screening process puts the most qualified individuals in command positions in the active force as well as the most capable leaders in the Inspector-Instructor positions in reserve artillery battalions. There is no "discriminator" for officers who serve as Inspector-Instructors vice active duty battalion commanders.

With this selection process, the Corps makes its best effort to put the officers most capable of mentoring the staffs of the reserve battalions in I&I positions. To mentor effectively, the active duty Marine must have the force and personal strength to focus the reserve staff when necessary, while simultaneously allowing the reserve commander to command. A heavy hand can create resentment among the reserve officers. A lack of forcefulness can lead to staff that is unfocused and wastes the reservist's most precious asset: time.

Having command-screened, unrestricted officers has another tremendous benefit. While the Active, Guard-Reserve (AGR) personnel in Army Reserve and National Guard Units, and Training and Administration of Reserve (TAR) leaders in the reserve naval establishment are fully qualified and technically and tactically proficient, they are nevertheless insulated from the active Army and Navy. Having a battalion I&I who is a peer of leaders serving in

the active divisions lends instant credibility to the reserve unit. This is particularly important when conducting counterpart training with the active forces. Reserve units are able to seamlessly integrate into larger active duty units in part due to the presence of the I&I staffs.

The active duty Marines continue to provide leadership and experience when the unit deploys. Rather than having the reserves mobilize and leave the active duty experience behind, the active duty personnel will accompany the reserve unit to the combat zone. The unit on the battlefield will be a total force organization.

Challenges at Battalion Staff Level. The strength of the Marine Corps Reserve, like the active forces, lies in its personnel. Each officer of the 14th Marines has served a minimum of a two- to three-year assignment in the active Fleet Marine Forces with a follow-on "B Billet" somewhere in the Marine Corps supporting establishment. These latter assignments include duty with the Marine Corps Security Force Battalion; an assignment at Headquarters Marine Corps in Washington, DC; or duty at one the Marine Corps recruit depots. When many of these officers leave active duty, the highest position achieved in an artillery unit may have been as a firing battery executive officer (XO). Some officers may have served up to a year as an assistant in a battalion operations or logistics office. This results in officers of reserve battalion headquarters with minimal experience in battalion staff work.

This challenge is not easily overcome. The ability of the battalion I&I and his staff to mentor the reserve battalion headquarters leaders is essential. Patience in this endeavor is not a virtue, it is an absolute necessity. Overcoming the issue of the lack of staff experience requires critical analysis in the appointment of key staff officers. These officers require a commitment to the reserve unit that exceeds that of other members. The fact that the battalions of the 14th Marines can make a credible (and sometimes superior) showing during counterpart training with the active forces is testimony to the skill and commitment of these reserve leaders and their I&I staffs.

Officers of the 14th Marines who require artillery MOS training may attend the Reserve Officer Artillery Course (ROAC) at Fort Sill to acquire basic gunnery skills. Attendance for reserve officers at the Professional Artillery Refresher Training (PART) Course at the FA School, Fort Sill each June is a method for officers to conduct staff training in fire support as well as gain refresher gunnery training.

The Biggest Challenge. As with all reserve units, the biggest challenge facing the Marine reserves is finding the time necessary to train for combat readiness. The units must accomplish many of the tasks their active counterparts do, but in a fraction of the time. The I&I staff is crucial in overcoming the limitations of one drill weekend per month and a two-week training period in a given year. The experience level of the I&I staff helps focus the reserve unit on tasks that will prepare it for combat. In many cases, the senior active duty Marine of the I&I staff is also the training officer for the reserves. He can develop a training schedule that focuses the unit on those tasks that will facilitate combat readiness. Additionally, other active duty I&I staff members are able to focus training in individual functional areas.

Equally important, the I&I staff can minimize the distracters to training by taking care of many administrative and logistical requirements facing a unit as it prepares to train. One example is the staging of equipment for movement to the field. Rather than the reserves spending valuable time, the active duty staff can pre-stage the equipment needed, allowing the reserves to depart much earlier for the field. This savings in time can be translated to more time for training the tasks that ensure readiness for combat. This is just one small example of how having a significant active duty presence at the battery, battalion and regimental levels can contribute to combat readiness.

14th Marines Headquarters. No discussion of Marine reserve artillery would be complete without looking at the very crucial role the 14th Marines Regimental Headquarters plays in the Marine Corps. Unlike the Army, the Marine Corps does not have a "Corps artillery headquarters" in its active structure. Yet, in a major conflict, the Marine expeditionary force (MEF), consisting of one or more Marine divisions, needs a headquarters that can control artillery. The 14th Marine Regiment has the mission of providing a MEF the force artillery headquarters necessary to control both Marine Corps and Army cannon and rocket artillery. This reserve regiment headquarters is used by the MEF commander to shape the battlefield with artillery fires. The active regiments continue to support the respective active duty divisions.

This critical function the Marine Corps has given its reserve artillery headquarters captures the great faith the Marine Corps places in its reserves. The success of the Marine reserve would not be possible if it were not for the synergistic effect of active and reserve Marines working side-by-side.

In recent years, "The Total Force" has become a concept touted by all services. I&I Marines and reserve Marines have for years been ensuring that the Marine Corps had a "total force" capable of responding to our nation's crises. That total force enabled Battery M, 4th Battalion, 14th Marine on 22 February 1991, to put rounds on time, on target!

Major Brian J. Kramer, US Marine Corps, is the Executive Officer of the Marine Corps Artillery Detachment, Fort Sill, Oklahoma. He served in the 14th Marine Regiment as an Inspector-Instructor for Headquarters Battery of the 3d Battalion in Philadelphia, Pennsylvania, accompanying his battery for training at Twentynine Palms, California; Fort Bragg, North Carolina; and other locations throughout the continental US. In other assignments, Major Kramer served as a Small Group Leader for the Captains Career Course as part of the Fire Support and Combined Arms Operations Department of the Field Artillery School at Fort Sill and Ground Exchange Officer for the First Marine Air Wing in Okinawa, Japan. He also commanded E Battery, 2d Battalion, 11th Marines at Camp Pendleton, California.

Major Alvin W. Peterson, Jr., US Marine Corps, is a Small Group Leader for the Field Artillery Captains Career Course in the Fire Support and Combined Arms Operations Department of the Field Artillery School at Fort Sill. He served in the 14th Marine Regiment as the Inspector-Instructor for M Battery, 4th Battalion, accompanying his unit to Fort McClellan, Alabama; Fort Carson, Colorado; and Twentynine Palms. In other assignments, he served as the Commander of B Battery, 1st Battalion, 10th Marines and the Fire Support Coordinator in the 2d Marine Regiment, both at Camp Lejeune, North Carolina. Major Peterson also served as a UN Observer with the Iraq-Kuwait Observer Mission.

1-171 FA, 45th FA Bde (Photo by SSG David Dyer, PA, OKARNG)

AC Training Support Brigade Assistance for RC Redlegs

by Lieutenant Colonel Gary A. Lee

"One Team, One Fight, One Future"...envisions a process that creates Total Army integration, moving the Army from three components [Army National Guard, Army Reserves and Active Army] into one seamless 21st century force designed to meet the challenges of supporting America's national military strategy.

General Dennis J. Reimer
Former Chief of Staff of the Army

In support of the 1990 Persian Gulf War, Reserve Component (RC) forces—Army National Guard (ARNG) and US Army Reserves (USAR)—mobilized and deployed, sometimes in advance of active forces. Benefiting from Cold War preparations and policy, both the Active Component (AC) and RC were better prepared than in the past to operate in the same theater. However, the Army still learned lessons from this mobilization.

For example, during the presidential selective reserve call-up, some units were assigned to headquarters with which they had never trained. Consequently, units could not coordinate with their gaining headquarters until after they knew to which headquarters they were assigned.

Additionally, some units mobilized at installations unfamiliar to them. These mobilization stations were understaffed because the RC units usually present under a full mobilization were not activated. Active units pulled double duty—deploying themselves while training and assisting RC units.

Another challenge was that new personnel were assigned as fillers to units immediately before deployment. Their level of expertise varied, and many were not military occupational specialty (MOS)-qualified. New equipment greatly enhanced RC unit capabilities, but units receiving the equipment after mobilization had little or no time to train on it. Scarce resources are continuing to cause problems in the length of the preparation time needed for RC units after mobilization and in the slowness of RC modernization, which will result in equipment compatibility problems on the battlefield.

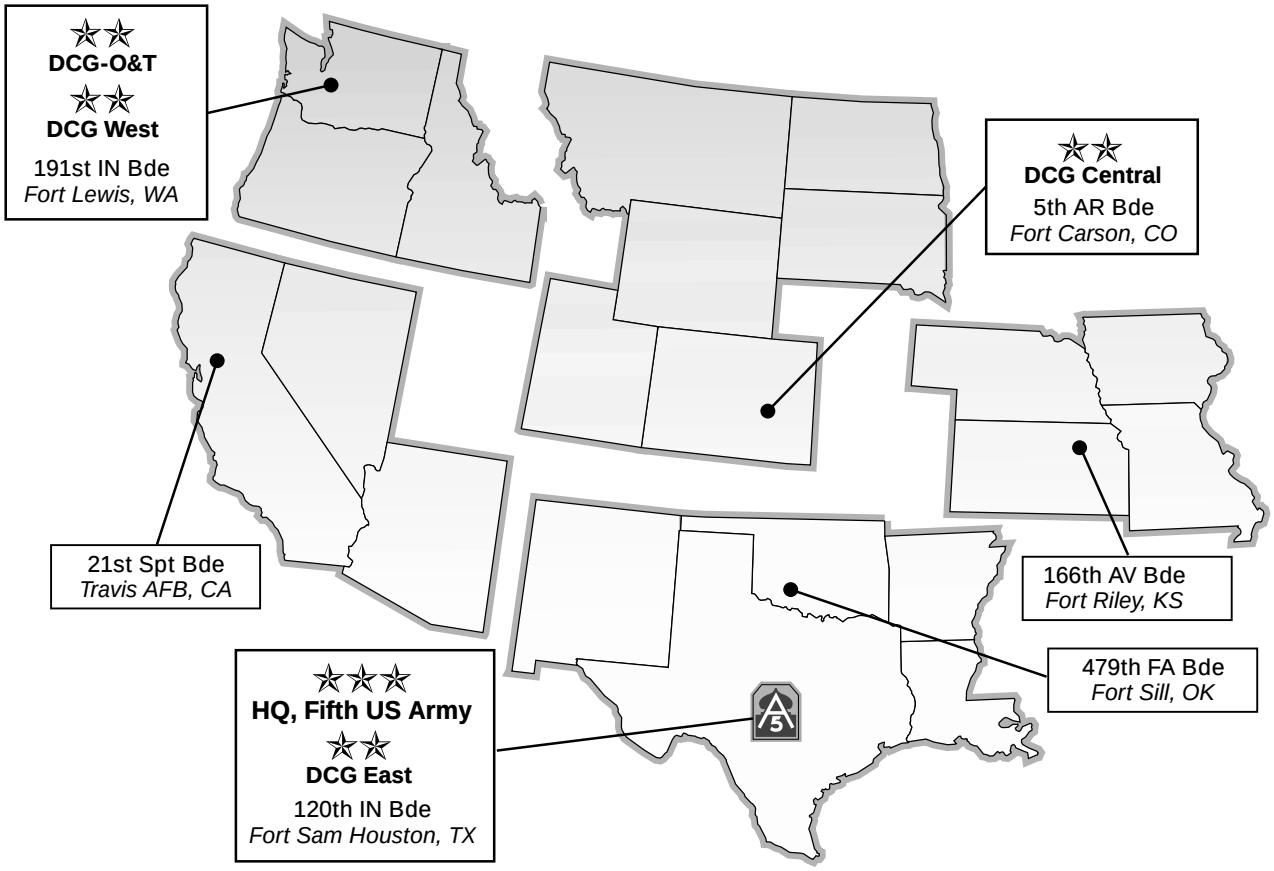
In his One Team, One Fight, One Future concept of a totally integrated AC-RC force, General Reimer states that the Army must have one clear, consistent standard. Achieving one standard requires Army readiness to be tested and validated continually. Furthermore, a thorough assessment of training and mobilization is necessary to ensure both realistically meet the needs of the Force.

This article gives an overview of the AC-RC Training Association Program, illustrates how the AC training support brigades (TSBs) with their training support battalions (TSBns) work with RC units and briefly discusses the AC-RC TSB organizational changes that be-

come effective 1 October with the implementation of Training Support XXI. Because more than two-thirds of the Field Artillery is in the ARNG, I focus on procedures that apply to that segment of the RC.

In addition, as examples of how a TSB supports its RC units, I discuss some procedures and techniques used by the 479th Field Artillery Brigade (FAB), a TSB in Fifth Army located at Fort Sill, Oklahoma. However, each of the 10 AC TSBs in Fifth and First Armies that train RC FA units has its own procedures and operational policies to comply with training support requirements mandated by Federal law. (See the maps of Fifth and First Armies' TSBs in Figures 1 and 2.)

AC-RC Program Overview. Since the Gulf War, legislation and programs introduced for both the AC and RC strive to improve the mobilization, training and integration of the RC. The Army National Guard Combat Readiness Reform Act



5th AR Bde

Fort Carson, CO
Colonel Jon D. Greer
(719) 526-5725
DSN: 691-5725

4th TSBn (FA)
Fort Carson, CO
LTC Cory S. Manka
(719) 251-1580
DSN: 883-1580

120th IN Bde

Fort Sam Houston, TX
Colonel William J. Troy
(210) 221-9977
DSN: 471-9977

7th TSBn (FA)
Fort Chaffee, AR
LTC Richard T. Lambert II
(501) 478-1660
DSN: N/A

8th TSBn (FA)
Fort Hood, TX
LTC Stuart G. McLennan
(254) 286-6762
DSN: 566-6762

191st IN Bde

Fort Lewis, WA
Colonel Tony A. Isaccs
(206) 967-2549
DSN: 357-2948

1st TSBn (FA)
Fort Lewis, WA
LTC William E. Kaiser, Jr.
(206) 967-2948
DSN: 357-2948

479th FA Bde

Fort Sill, OK
Colonel David M. Annen
(580) 442-2902
DSN: 639-2902

1st TSBn (MLRS)
Fort Sill, OK
LTC Gary A. Lee
(580) 442-2504
DSN: 639-2504

2d TSBn (MLRS)
Fort Riley, KS
LTC William Balogh
(785) 239-2353
DSN: 856-2353

Legend:

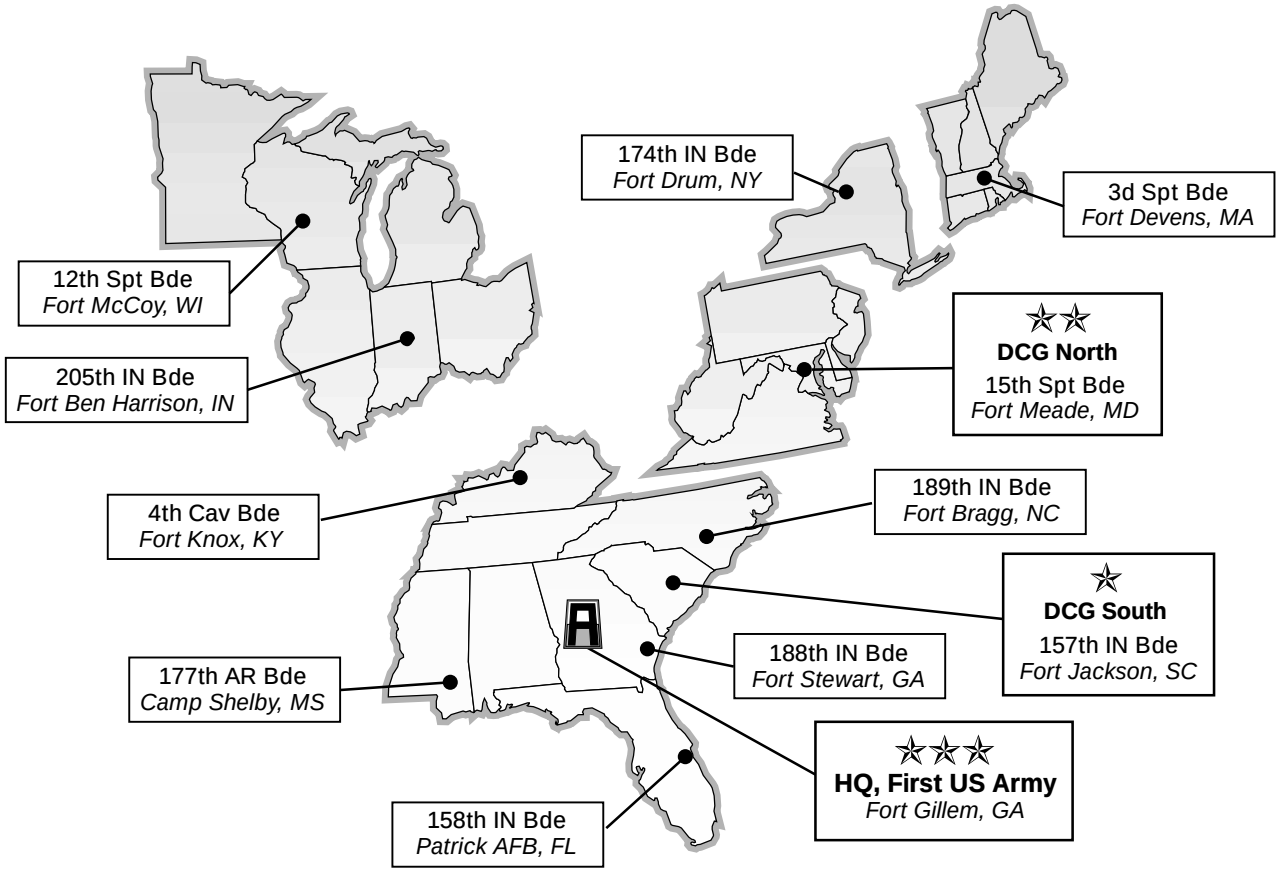
AR = Armor
AV = Aviation
Bde = Brigade
Cav = Cavalry
DCG = Deputy Commanding General
FA = Field Artillery
IN = Infantry
MLRS = Multiple-Launch Rocket System
O&T = Operations and Training
Spt = Support
TSBn = Training Support Battalion

Figure 1: Fifth Army Unit Designations. The list of training support brigades (TSBs) with commanders and telephone numbers are the TSBs in Fifth Army that train Field Artillery RC units.

(ANGCRRA) of 1992 (Public Law 102-484, Title XI, as amended) requires that RC units considered essential for execution of the national strategy be associated with an AC unit. ANGCRRA also prescribes responsibilities for the associated AC unit commanders, commonly called Title XI responsibilities.

In compliance with Title XI, Forces Command (FORSCOM) Regulation 350-4 AC-RC Training Association Program (17 August 1998) establishes associations between AC units and priority RC units. In addition, it provides the TSB guidance for readiness oversight responsibilities.

Not all RC units receive the same amount or type of training support. The



4th Cav Bde

Fort Knox, KY
Colonel G. Patrick Ritter
(502) 626-2106
DSN: 536-2106

3d TSBn (MLRS)
Fort Knox, KY
LTC Kevin L. Bowles
(502) 626-2201
DSN: 536-2201

4th TSBn (FA)
Fort Knox, KY
LTC Ronald J. Davidson
(502) 626-2209
DSN: 536-2209

15th Spt Bde

Fort Meade, MD
Colonel E. James Mason
(301) 677-6126
DSN: 923-6126

1st TSBn (FA)
New Cumberland, PA
LTC John D. Murray
(717) 770-4837
DSN: 977-4837

157th IN Bde

Fort Jackson, SC
Colonel David R. Oslin
(803) 751-4616
DSN: 734-4616

3d TSBn (FA)
Fort Jackson, SC
LTC George Mastromichalis
(803) 751-4724
DSN: 734-4724

174th IN Bde

Fort Drum, NY
Colonel Michael F. Krejci
(315) 772-9625
DSN: 341-9625

3d TSBn (FA)
Fort Drum, NY
LTC John W. Groefsema
(315) 772-2877
DSN: 341-2877

177th AR Bde

Camp Shelby, MS
Colonel John E. Baggott
(601) 558-4406
DSN: 921-4406

3d TSBn (FA)
Camp Shelby, MS
Major Mark Rozalski
(601) 558-4005
DSN: 921-4005

188th IN Bde

Fort Stewart, GA
Colonel Billy E. Wells
(912) 767-0601
DSN: 870-0601

3d TSBn (FA)
Fort Stewart, GA
LTC Michael J. Mikitish
(912) 767-0602
DSN: 870-0602

Figure 2: First Army Unit Designations. The list of TSBs with commanders and telephone numbers are those in First Army that train Field Artillery RC units.

RC unit's order for force generation—first-to-go in a deployment—coupled with its training needs determine the type and priority of support. Within Fifth Army, priority units include divisional roundout units (ROs), force support package (FSP) 1 and 2 units (primary feeder units into theaters one and two), units that will close into theater with the latest arrival dates less than or equal to 30 days (called LAD < 30 units), designated attack helicopter units (AH-64) and enhanced separate brigades (eSBs). The other "traditional" units are supported within the TSB's capability after supporting its priority units.

Our example 479th TSB is an active Army organization reporting directly to Fifth Army, a Continental United States Army (CONUSA) Command. Within Fifth Army, the 479th FAB has Title XI responsibility for FSP units that are not General Officer commands (GOCOMs) and for LAD < 30 units within its designated states.

Figure 3 shows the general functions of the 479th and its TSBns. These responsibilities include approving unit training programs; reviewing readiness reports; assessing manpower, equipment and training resource requirements; and validating the compatibility of the unit with AC forces. These responsibilities empower the TSB commander to approve yearly training plans (YTPs) and post-mobilization (post-mob) training plans (PMTP) for its FSP and LAD < 30 RC units (with the exception of GOCOMs).

FORSCOM Reg 350-2 specifies the TSBs help the RC unit commanders determine the information for their training assessment models (TAMs) in accordance with FORSCOM Regulation 220-3 Reserve Component Training Assessment. TAM is a management tool that provides leaders a framework for planning, supporting and assessing training readiness.

TSB Organization and Training Support Operations. The TSBs execute many of these responsibilities through their organic TSBns. In the case of the 479th FAB, it's organized into five battalions: two train RC multiple-launch rocket system (MLRS) units and three train RC combat support/combat service support (CS/CSS) units. The 479th's 1st TSBn (MLRS) advises priority RC units on training matters, assists in training validation and provides lane training.

The center of gravity of the TSB is its observer-controller/trainer (OC/T) teams in its TSBns. Each TSBn is composed of highly skilled and experienced teams that provide quality lane training, training assistance, assessment and feedback to their supported priority units.

Training Support Brigade (TSB)

- Coordinate and conduct combined arms (CA) and combat service/combat service support (CS/CSS) lane training.
- Provide unit training assistance (branch and functional), as requested.
- Provide mobilization/demobilization assistance (flyaway team).
- Provide mobilization assistance team (MAT) to power projection platform.
- Coordinate and conduct military support to civil authorities (MSCA).
- Provide a defense coordination element (DCE) cell for weapons of mass destruction (WMD)/response task force (RTF), as directed.
- Provide training assistance model (TAM) evaluations.
- Approve RC unit yearly training plan (YTP).
- Plan and execute internal unit training requirements: observer-controller/trainer (OC/T) team training and certification, common task training (CTT), Army physical fitness test (APFT) and military occupational skills (MOS) training.

Training Support Battalion (TSBn)

- Coordinate and conduct CA and CS/CSS inactive duty training (IDT) and annual training (AT) lane training.
- Participate in mission-essential task list (METL)/YTP development.
- Provide branch and functional assistance training.
- Provide TAM evaluations, as directed (company/battery and below).
- Some TSBns provide the DCE cell for MSCA/WMD.

Figure 3: Functions of the 479th FAB.

The 479th FAB's two battalions that support ARNG MLRS units are configured the same. Each consists of three firing battery teams and a headquarters battery team—a total of six officers and 29 NCOs. It has 12 OC/T teams. The battalion's CS/CSS NCOs in the headquarters battery have a dual responsibility to provide OC/T teams for low-density CS/CSS MOS in MLRS units and internal organic support. The operations section plans and coordinates both internal training for the OC/Ts and external training with supported priority ARNG units.

Because the 479th supports ARNG MLRS units, other TSBns that work with FA units in direct support of ARNG maneuver units have a slightly different organizational structure. For example, such units include a fire support section.

The 479th's 1st TSBn provides training assistance, support and assessments for five FSP 2 units. These priority units are the 45th FAB; 1-158 FA (MLRS) plus its 1045th Ordnance Detachment and 1-171 FA (MLRS) plus its 1145th Ordnance Detachment, all in the Oklahoma ARNG.

AC and RC leaders at all levels work together to plan, execute and assess pre-mobilization (pre-mob) and post-mob training, based on the unit's mission-essential task list (METL). The pre-mob objective is to identify achievable, sustainable pre-mob training requirements that will produce a predictable starting point for post-mob training to accommodate the required deployment time line.

479th's Battle Rhythm. The TSB training support cycle is similar to the training management cycle in *FM 25-101 Training the Force: Battle-Focused Training.* Once a priority ARNG unit has been associated with an AC unit in accordance with FORSCOM Regulation 350-4, the commander of the 479th FAB forwards a memorandum to the unit. The memorandum identifies which AC unit will provide the ARNG unit training support and explains how the TSB will accomplish its training support responsibilities.

The 479th FAB charts its cycle of training support events, called its "Battle Rhythm," on a three-year calendar to ensure it executes its Title XI responsibilities. The 479th's Battle Rhythm covers the TSB's three-phase training cycle with overlapping planning cycles.

In Phase I, the 479th approves the ARNG battalions' post-mob plans in the first quarter of each year. The ARNG unit commander plans pre-and post-

mob training by evaluating his unit's METL with the assistance of the TSB and its TSBn. He selects a specific set of tasks cross-walked with the METL that can be mastered and sustained annually within the pre-mob 39-day training year. The pre-mob set of tasks may include only the critical tasks for the most important METL missions. Those tasks not selected are deferred for post-mob training.

RC units in Fifth Army may separate these tasks by categories. Category 1 tasks are the most important that the RC unit commander determines he must train to Army standard and achieve the assessment of "trained" (T). Category 2 tasks are important, but time may be insufficient to achieve T. The RC commander only may have time to achieve an assessment of "needs practice" (P) and must allot time to train these tasks in post-mob training to achieve the Army standard. Category 3 tasks are those remaining that support the METL but can't be trained in the 39 days of training each year. These tasks are included in the PMTP. Identifying what collective tasks need to be trained leads to the unit's yearly training calendar (YTC) that directs when and where to train the tasks.

In Phase II, the primary focus during the second quarter is the preparation of the YTP for the following year and coordination for the current year's annual training (AT). The RC commander develops detailed post-mob plans with the help of its TSB/TSBn. The post-mob training and support requirements (PTSR) document is updated with collective tasks that were not trained to Army standard during the training year. Upon mobilization, plans are reviewed and implemented by the organization responsible for validating the RC unit's combat readiness.

Approval of the YTP is followed by the yearly training brief (YTB) in the third quarter. The YTB is the ARNG unit's vehicle to present the YTP to the chain of command and to the TSB for approval. The YTB identifies the external resources necessary to accomplish the training. Inactive duty training (IDT) lane training also is completed in the third quarter.

During Phase III, the emphasis is on supporting and assessing AT in the fourth quarter of the year. In conjunction with the ARNG unit commander, the 1st TSBn assesses and evaluates the tasks performed during the IDT and AT portions of the training support cycle. OC/T teams use the after-action review (AAR) process to help the unit discover training deficiencies and determine corrective actions.

Based on the results of training, the ARNG commander reevaluates the status of his unit. He updates the TAM to identify the collective tasks and PTSR to be trained at AT. The annual TAM reflects the unit's functional, administrative and collective task areas, providing a "snapshot" of the unit's readiness rating. The ratings are based on success in training pre-mob tasks, impacting the number of days needed to attain combat readiness in future pre- and post-mob training.

1-171 FA (MLRS) at AT 99. The road to a fully DMOSQ soldier in the ARNG can be challenging. *(Photo by SSG David Dyer, PA, OKARNG)*

After AT, the TSBn works with the ARNG unit to adjust its upcoming YTP and finalize training support agreements. AT planning begins two years prior to execution—hence, the 479th's three-year Battle Rhythm. AT scheduling conflicts are resolved during the Regional Scheduling Workshops (First Army) and the annual Training Support Synchronization Conference (First and Fifth Armies).

And then the cycle starts again with Phase I. Throughout the cycle, the OC/T teams provide branch, functional and mobilization assistance to their priority support units, as required.

ARNG Training Challenges. ARNG units face several training challenges. The ARNG budget limitations may not allow a leader to attend a leadership school required at his level and a major training event in the same year, limiting his timely development. The OC/T teams help by presenting unit leader classes covering topics such as troop leading procedures or other areas the ARNG unit commander wishes to emphasize.

Soldier proficiency is paramount. The ARNG commander faces the same challenges with soldier training as with leader training. Upon completion of initial entry training (IET) and usually during AT, the commander ensures that soldiers who are not duty MOS-qualified (DMOSQ) are enrolled in the first available MOS-producing school. These schools generally preclude participation in AT for a second year. Thus, the road to a fully DMOSQ soldier in an ARNG unit can be quite long. The OC/T teams' knowledge and experience are critical to the learning process of individuals and sections during training events.

Low-density MOS soldiers can present additional training challenges for ARNG commanders, especially when the geographic separation of subordinate units prevents consolidated training at the battalion level.

Some support for ARNG FA units comes from Infantry or Armor TSBns. Each TSB that has an eSB in its support area also includes an infantry or armor TSBn (depending on the branch designation of the eSB) that works in residence with the eSB. The eSB TSBn is organized by branch-specific companies or teams (formerly called resident training detachments, or RTDs), including an FA team. The company/team sizes vary but range from about three to seven people.

Current Name	Endstate Name	Location
4th Cavalry Bde	**4th Bde, 85th Div (TS)**	Fort Knox, KY
3d TSBn (MLRS)	1st Bn (TS) (FA), 410th Regt	Fort Knox, KY
4th TSBn (FA)	2d Bn (TS) (FA), 410th Regt	Fort Knox, KY
5th AR Bde	**2d Bde, 91st Div**	Fort Carson, CO
4th TSBn (FA)	3d Bn (TS) (FA), 359th Regt	Fort Carson, CO
15th Support Bde	**5th Bde, 78th Div (TS)**	Fort Meade, MD
1st TSBn (FA)	2d Bn (TS) (FA), 315th Regt	New Cumberland, PA
120th IN Bde	**2d TS Bde, 75th TS Div (Reserve)**	Fort Sam Houston, TX
7th TSBn (FA)	3d Bn (TS) (FA), 393d Regt	Fort Chaffee, AR
8th TSBn (FA)	2d Bn (TS) (FA), 395th Regt	Fort Hood, TX
157th IN Bde	**5th Bde, 87th Div (TS)**	Fort Jackson, SC
3d TSBn (FA)	2d Bn (TS) (FA), 307th Regt	Fort Jackson, SC
174th IN Bde	**2d Bde, 78th Div (TS)**	Fort Drum, NY
3d TSBn (FA)	3d Bn (TS) (FA), 314th Regt	Fort Drum, NY
177th AR Bde	**3d Bde, 87th Div**	Camp Shelby, MS
3d TSBn (FA)	2d Bn (FA), 505th Regt	Camp Shelby, MS
188th IN Bde	**4th Bde, 87th Div**	Fort Stewart, GA
3d TSBn (FA)	2d Bn (TS) (FA), 306th Regt	Fort Stewart, GA
191st IN Bde	**4th Bde, 91st Div (TS)**	Fort Lewis, WA
1st TSBn (FA)	3d Bn (TS) (FA), 358th Regt	Fort Lewis, WA
479th FA Bde	**4th Bde, 75th Div (TS)**	Fort Sill, OK
1st TSBn (MLRS)	1st Bn (TS) (FA), 290th Regt	Fort Sill, OK
2d TSBn (MLRS)	2d Bn (TS) (FA), 289th Regt	Fort Riley, KS

Legend:

Bde = Brigade **FA =** Field Artillery **TSB =** Training Support Brigade
Bn = Battalion **Regt =** Regiment **TSBn =** Training Support Battalion
Div = Division **TS =** Training Support

Figure 4: Training Support XXI Unit Name Changes. Effective in October, the AC and RC training support structures merge, and TSB and their TSBns are renamed as indicated. The TSBs listed are only those that have TSBns that train Army National Guard FA units.

For example, First Army's 158th Infantry Brigade, a TSB at Patrick AFB in Florida, has no FA TSBns. However, it has an Infantry TSBn that works with the 53d Infantry Brigade, an eSB. Therefore, the Infantry TSBn includes an FA team in the armory with 2-116 FA, Florida ARNG, the FA battalion that is DS to the 53d Brigade.

Training Support XXI Organizational Changes. The Training Support XXI program continues to provide units suitably located to train and evaluate RC units on a prioritized basis. It consolidates all AC and RC soldiers into combat arms (CA) and CS/CSS battalions organized into a TSB under the command of a CONUSA. The TSBs will fall under the administrative control of training support divisions (TSDs), currently called Exercise Divisions, or DivExs.

Basically the reorganization takes the two separate training support structures (AC and RC) and integrates them into one. The AC structure is CONUSAs with TSBs and their TSBns, and the RC structure is the DivExs with field exercise brigades (FEBs) and their field exercise battalions (FEBns.) Training Support XXI organizes the CONUSAs' TSBs under the administrative control of the TSDs.

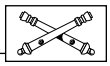
Except for unit name changes, the reorganization will be transparent for the user unit. For example, on 1 October, Fifth Army maintains operational control (OPCON) of the 75th Division that assumes administrative control of the 479th FAB.

Effective 16 October, the current TSB/FEB and TSBns/FEBns will merge into tri-component (AC, ARNG, USAR) organizations called TSBs that change their unit designations in accordance with USAR lineage. (See Figure 4.) Regardless, the TSBs will continue to support their same priority units. In the CONUSA, the TSBs will still be the single-source provider for METL development, YTP assistance, IDT/AT lane training support, PMTP/PTSR assistance, mobilization assistance and branch/functional area assistance.

As the Army postures for the 21st century, the traditional mix of AC and RC forces becomes redefined as do roles, responsibilities and associations. In 1996, for example, an AC lieutenant colonel assumed command of an Army National Guard (ARNG) FA battalion: Lieutenant Colonel John R. Hennigan, 1st Bn, 141st FA, Louisiana ARNG. In 1998, AC Redleg Colonel Mark A. Graham assumed command of the 40th Infantry Division (Mechanized) Artillery, part of the California ARNG. In the years ahead, command exchange programs will include RC officers commanding AC units.

The establishment of AC-RC training associations, the consolidation of the AC-RC training support structure for RC units and AC-RC unit command exchanges are only three of many programs to integrate the AC-RC into one Army. For more information on such programs, see the US Army Active/Reserve Component Integration Home Page at http://www.paed.army.mil/acrc.

Throughout it all, the TSB/TSBn and, more specifically, the OC/T teams will continue to provide the interface between the AC and RC to achieve the goals of one Army standard within the vision of One Team, One Fight, One Future.



Lieutenant Colonel Gary A. Lee commands the 1st Training Support Battalion (MLRS), 479th Field Artillery Brigade, a Training Support Brigade (TSB), at Fort Sill, Oklahoma. In his previous assignment, he was a staff officer for the Military Representative to NATO in Brussels, Belgium. In other Field Artillery assignments, he served as Battalion Executive Officer and S3 for the 3d Battalion, 18th Field Artillery in the 17th Field Artillery Brigade, III Corps Artillery at Fort Sill and 1st Brigade Fire Support Officer and Battery Commander for the 7th Battalion, 8th Field Artillery, both in the 25th Infantry Division (Light) at Schofield Barracks, Hawaii. He is a graduate of the Army War College, Carlisle Barracks, Pennsylvania. The author wishes to thank his battery commanders Captains Billy J. Hensley, Charles C. Flint and Jeffrey A. Poshard for their contributions to this article.

AC-RC Integration

Seamless Land Power for the 21st Century

by Lieutenant Colonel (Retired) Gordon Sumner, AV;
Colonel M. Bruce Elliott, EN; and Colonel Hugh F. T. Hoffman, IN

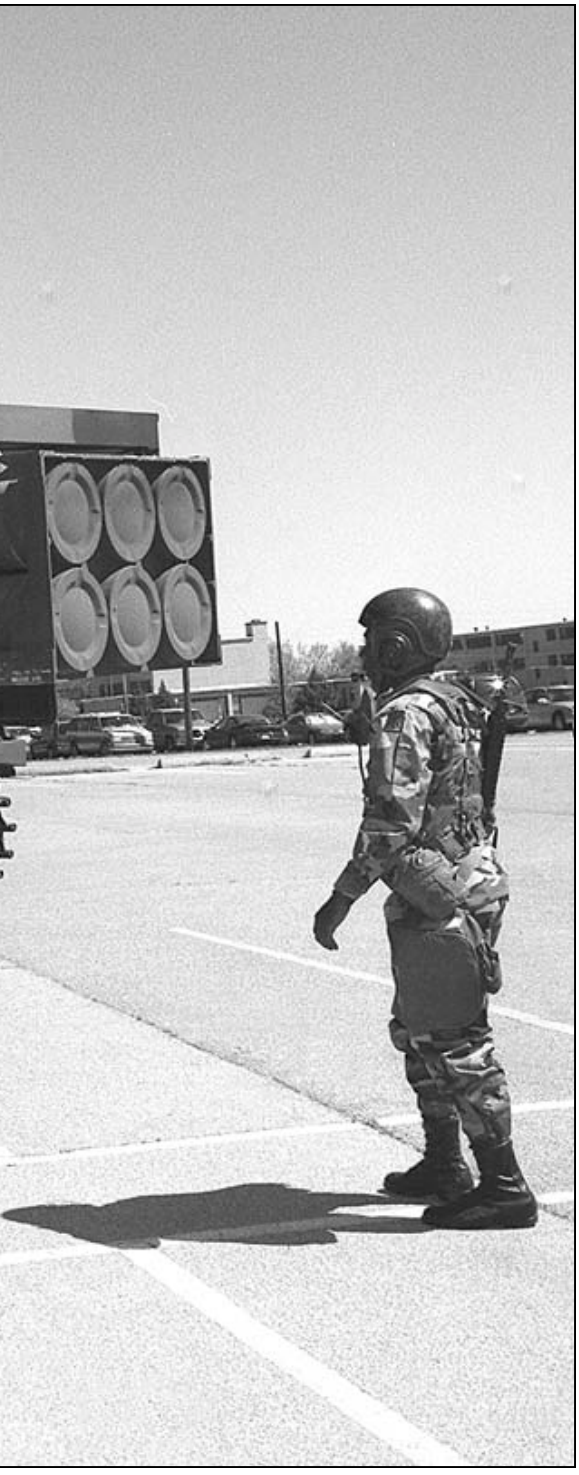
There is no finer example of integration than we have today in the artillery. You can look across the systems at Fort Sill—modernization, distance learning and the basic trust among the key players. Fire support is truly a model.

Major General Roger C. Schultz
Director, Army National Guard

(Photo by Kevin Tucker, Fort Sill TSC)

Much has been written about the unprecedented change required for success in the post-Cold War world, change that affects almost every aspect of America's Army. The Field Artillery (FA) long has been a leader in innovation and moving the Army forward. Active Component-Reserve Component (AC-RC) integration is a premier example.

Army National Guard (ARNG) and US Army Reserve (USAR) soldiers comprise more than half of the Army—54 percent—the highest percentage of any military service. The percentage is even more significant in the FA. More than two-thirds of the FA is in the National Guard.



Today, we're employing our reserve forces at unprecedented levels. We cannot maintain our military commitments around the world without the skills and expertise in the Guard and Reserves. As missions have increased, the requirements for all components of our Army have increased.

One of the most significant, far-reaching and invigorating changes the Army is undertaking is the seamless integration of its three components: AC, ARNG and USAR. This process is propelled by the vision published in the Chief of Staff of the Army's (CSA's) 1998 white paper titled "One Team, One Fight, One Future." It's a process that's providing synergy to the tremendous military capabilities of our Army.

Our national military strategy is based on three pillars—*shaping* the international environment, *responding* to crises when and where they occur and *preparing* for the challenges we'll face in the next century—all while maintaining current readiness. Executing the new strategy that spans a broader range of missions with a smaller active Army requires new and innovative ways of incorporating our reserve forces. Increased reliance on the RC is a return to our national roots.

Our history repeatedly illustrates the importance of being ready when called. The lessons of history instruct us that we will not succeed in our missions unless we make the best of our resources and bring the unique talents and capabilities of each Army component to bear.

In the past, relationships among Army components have been strained at times, reflecting differing views of how to best provide for current needs and future modernization efforts. Full integration requires a change in Army culture to build trust and confidence throughout our force. It also requires we align missions and the capabilities of our three components to provide the seamless force our nation needs and deserves.

We have undertaken more than three dozen initiatives and actions that clearly demonstrate our intent to create that seamless force. Today, RCs have enhanced representation in budgetary and force structure processes, critical conferences, key Army training events and integrated staffs in the Department of the Army headquarters and field units. This article discusses some programs and initiatives ongoing and planned for the future with the goal of integrating AC-RC components of the Army.

Principles of Integration. In September 1997, the Secretary of Defense issued the memorandum "Integration of the Reserve and Active Components." This memo outlined four essential principles required for effective integration. First is to share *responsibility* in the Army; second is to focus on accomplishing the *mission* as one team; third is to ensure the AC and RC have the *resources* they need to accomplish that mission and fourth is to maintain *readiness*, today and tomorrow. The Army is aggressively moving forward to accomplish these.

Responsibility. To accomplish this principle, we revitalized our two key forums, the Reserve Components Coordination Council (RCCC) and the Army Reserve Forces Policy Committee (ARFPC), to resolve issues that inhibit full integration. A process has been developed to concentrate all on-going integration initiatives and track implementation progress.

A council of colonels meets prior to the RCCC and ARFPC to clarify issues, seek resolutions where possible and make recommendations to the RCCC and ARFPC. A council of deputies meets prior to the RCCC to further refine issues and make recommendations to the RCCC. The Army Reserves and Army National Guard, as well as the Assistant Secretary of the Army for Manpower and Reserve Affairs, are represented on each council and the RCCC and ARFPC.

For the AC and RC to truly share responsibility, we've established some cross-component general officer and command/staff billets. The Deputy Commanding General of I Corps, one of the Army's three active corps, is an RC general officer. I Corps, headquartered at Fort Lewis, Washington, has subordinate units throughout the continental United States. Almost 80 percent of its units are in the RC. Assigning an RC deputy commander fosters integration and improved command and control. The Army is reviewing other general officer positions for designation as RC billets.

The Army also has implemented a command and staff exchange program to help weave a seamless Army. The

initial exchanges involve AC commanders who command RC forces, primarily in the Army National Guard. The Field Artillery has taken one of the first and most significant steps toward true AC-RC integration with command and staff exchanges.

• In October 1996, Lieutenant Colonel John R. Hennigan, an AC officer, was assigned to command the 1st Battalion, 141st Field Artillery, Louisiana Army National Guard. He completed his command in October 1998 and continues to draw on that experience in his present assignment on the Army Staff.

• In July 1998, Captain Anthony Demasi, an active duty officer, joined the 1st Battalion, 201st Field Artillery of the West Virginia Army National Guard. At the same time, Captain J. Mark Hennigan (no relation to Lieutenant Colonel Hennigan) of the West Virginia Army National Guard, began two years active duty at Fort Sill, Oklahoma.

•In September 1998, AC officer Colonel Mark A. Graham assumed command of the 40th Infantry Division (Mechanized) Artillery, California Army National Guard.

The Assistant Deputy Chief of Staff for Personnel, Director of the Army National Guard and Chief of the Army Reserve are determining additional command and staff positions in AC and RC units where such exchanges may take place. This program has created an environment that fosters better understanding of and an appreciation for the unique capabilities of the different components.

Mission. This second integration principle calls for greater tri-component involvement in the decision-making process, especially those decisions affecting force structure and resource allocation. The Army's dedication to this principle is amply illustrated in the current Total Army Analysis (TAA). The TAA establishes the Army's force structure to support warfighting and support requirements. In the on-going TAA process, the three components work together to determine and align the future force structure to accomplish specific Army missions. New programs such as "multi-component units" and "teaming" will help determine the best mix of units and methods of employment for achieving our diverse, worldwide missions.

The pilot program for multi-component units is underway at the 321st Materiel Management Center (MMC) and its parent unit, the 377th Theater Support Command, both Louisiana-based USAR units. The 321st MMC performs supply and maintenance management for Third US Army units both in Southwest Asia and throughout the southeastern United States.

The MMC has AC and RC soldiers. Many of the AC soldiers are assigned to the 321st Forward Element in Kuwait. During peacetime, Reserve soldiers support the mission both from home bases in Louisiana by deploying on three-week annual training tours to Kuwait and by remaining prepared to deploy quickly in case of a crisis.

Like all Third Army major subordinate commands, the 321st MMC has operated as a multi-component unit for several years. We're now formalizing the ad-hoc relationship by assigning all AC and RC soldiers to a single unit authorization document. This initiative eventually will solve many of the administrative challenges associated with tracking soldiers on multiple documents at different levels of the command structure. Also, it will improve unit efficiency and enhance readiness.

Teaming is another pilot program for better integration. The program is designed to provide as much combat power as possible out of limited force structure. Teaming basically establishes a mutual support relationship or a follow-and-support relationship between an AC division and an ARNG division. This relationship covers the full spectrum of operations from military support to civilian authorities (MSCA) to high-intensity combat.

The central idea behind teaming is that each division would take the lead in certain mission areas. If the lead division needed additional resources, it would go to the teamed division and draw from those resources. For example, if one division deployed for a major theater war, the other division could assist in deploying it. Additionally, the supporting division could provide replacement packages, as required.

Teaming basically establishes a mutual support relationship or a follow-and-support relationship between an AC division and an ARNG division. This relationship covers the full spectrum of operations from military support to civilian authorities (MSCA) to high-intensity combat. *(Photos by SSG David Dyer, PA, OKARNG)*

We're exploring teaming opportunities with two division sets. The 49th Armored Division, Texas Army National Guard, is teamed with the 1st Cavalry Division at Fort Hood, Texas, and the 40th Infantry Division from California is teamed with the 4th Infantry Division (Mechanized) at Fort Hood.

As the Army continues operations in Bosnia, we'll consider using elements of all components. For example, the 49th Armored Division has been selected as one of the divisional headquarters for command and control in Bosnia next year. To provide predictability for soldiers, families and employers, we announced this decision a year in advance of the 49th Armored Division's assuming the mission. US Forces Command (FORSCOM) is planning and developing the mission, and the 1st Cavalry Division will assist the deployment.

Over the next several years, we plan to expand the teaming program to additional divisions and then to combat support (CS) and combat service support (CSS) units. Aside from deployments, teaming will enhance professional development opportunities for Army officers and NCOs building on the many unique capabilities and talents of our components. Teaming is a "win-win" situation for the units involved, the Army and the nation.

Resources. Army integration programs must culminate with forces adequately resourced to accomplish their missions. Since 1989, the Army budget has declined in buying power by 37 percent. The Army does not have enough money to do everything it needs to do. With severely constrained resources, we have had to balance risk in our investment programs with near-term readiness concerns.

This reduction in resources has affected all components, limiting the Army's ability to leverage its unique strengths. The Army has fully integrated its resourcing process and targeted prudent investments in the RC.

Between 1992 and 1998, the Army funded RC modernization at an unprecedented level with the programs totaling $21.5 billion for new and cascaded equipment. Additionally, the Army programmed $3.4 billion for RC modernization in the FY99 to FY03 program. These investments demonstrate the Army's commitment to fund the entire force to get the optimal capabilities. The tri-components will continue to participate in the allocation of resources.

Weapons systems in future conflicts will be capable of 24-hour operations, but soldiers will not. To take advantage of these weapons, we must consider multiple crews and staffs from AC and RC units to conduct continuous operations to quickly defeat threats.

Readiness. Readiness is not negotiable. The Army will not put soldiers in harm's way without ensuring they're trained and ready for the missions. To date, we have been able to do this through standardization of training. RC units participate in rotations to the National Training Center (NTC) at Fort Irwin, California; Joint Readiness Training Center (JRTC) at Fort Polk, Louisiana; and Battle Command Training Program (BCTP) at Fort Leavenworth, Kansas. To continue achieving this, the Army must leverage the strengths of each component.

Army Challenges and Opportunities. Challenges regarding AC-RC integration encompass two other important elements: people and time. These challenges are not component-specific. Across the Army, many units are short of their authorized strength, especially in NCO and individual soldier skills. The Army's recruiting campaign is a focused effort to recruit top-quality soldiers, for all components.

The other challenge is time—time away from mission training, time away from family and community and, for RC soldiers, time away from civilian employment. Since 1989, the Army has provided more than 60 percent of the forces committed to 33 contingency operations with about 30,000 soldiers deployed. On the average, between 4,500 and 5,000 of these were RC soldiers. This increase in deployments especially has affected those soldiers with specialized skills, creating a tremendous personnel tempo challenge for the Army.

The Army is dedicated to reducing the impact of the personnel tempo in the AC without transferring the problem to the RC. The Personnel Tempo (PERSTEMPO) Working Group in the RCCC is examining ways to improve access to RC units to optimize Army worldwide missions.

Employer support is vital to the RC's essential role in preserving national security. Members of the Employer Support to the Guard and Reserve (ESGR) throughout our country provide the encouragement and cooperation that enable their employees to participate in Guard and Reserve programs and activities.

The Seamless Future Force. To prepare for an uncertain future, the Army is projecting out to the year 2025 to the Army After Next. As we explore possibilities and experiment with concepts, our goal is to build organizations that maximize the human potential of the force. Future weapons systems will be capable of 24-hour operations, but soldiers will not. To take full advantage of these weapons, we must consider mul-

tiple crews and staffs to conduct continuous operations to quickly defeat threats.

Integrated Divisions. Introduced by the state adjutant generals (TAGs), the integrated division is moving the Army toward continuous combat operations. Recently, the Army identified the two divisions that will lead this effort. The 24th Infantry Division (Mechanized) out of Fort Stewart, Georgia, will combine three mechanized ARNG enhanced separate brigades (eSBs) under the command of an AC headquarters; and the 7th Infantry Division (Light) has been resurrected with its headquarters at Fort Carson, Colorado, to do the same with three light infantry brigades. In addition to benefiting training and warfighting, this initiative will build the intercomponent trust and confidence so important for the Army.

The Army After Next. We cannot fully define the organization and equipment of the Army After Next in 2025, but some things we do know.

• It will be a seamless force, taking full advantage of the unique capabilities of each component.

• It will be more strategically, operationally and tactically mobile, getting there faster with the right force for the mission.

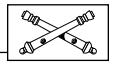
• It must be very agile on the battlefield—be able to gain and retain the momentum and take the fight to the enemy 24 hours a day.

• Its leaders must leverage powerful new information systems and processes to maintain the technical and tactical edge on the battlefield.

• It must press the fight continuously, challenging human endurance with multiple crews drawn from all Army units to man key systems. How well we integrate these crews in units will be critical to their effectiveness.

An idea under consideration is creating an army with greater freedom of movement among the components. For example, a soldier would come into the AC force and serve for a period of time, then serve in the ARNG or USAR and later, perhaps, go back to AC. We need to determine how to be more flexible in managing individual careers.

Our Army is not waiting. Amidst the transformation to meet today's missions and tomorrow's requirements, one inviolable constant guides us: our purpose is to fight and win the nation's wars. We are America's Army—*One Team, One Fight, One Future.*



Lieutenant Colonel (Retired) Gordon Sumner, Aviation, is the Project Manager for the AC-RC Integration Team, Office of the Chief of Staff of the Army at the Pentagon. In his previous assignment, he was the Chief of the Institutional Training Division in the Office of the Deputy Chief of Staff for Operations and Plans, also at the Pentagon. He served as G3 of the Fourth Region Reserve Officer Training Corps (ROTC) and instituted the Officer Candidate School Candidate Regiment into the ROTC Advanced Camp. He also served as Professor of Military Science (PMS) at the University of Nebraska. He holds a Master of Arts in Education from Boston University.

Colonel M. Bruce Elliott, Engineer, until recently was the Deputy Director of Reserve Affairs for Program Analysis and Evaluation in the office of the Chief of Staff of the Army. In that position, he was the "Point Man" for the Chief of Staff's Active Component-Reserve Component integration initiatives. Currently, he is a Senior Army Fellow at the Brookings Institute in Washington, DC. He holds Masters of Science in Systems Analysis and Engineer Management from George Washington University and in National Security Strategy from the National War College, both in Washington, DC.

Colonel Hugh F. T. Hoffman, Infantry, until recently was the Director of the Staff Group in the office of Chief of Staff of the Army. Currently, he is a Senior Army Fellow at Harvard. During Operations Desert Shield and Storm, he was the Chief of Staff (Forward) for the 4th Infantry Division (Mechanized) where he was involved in mobilizing RC forces for the war effort. He holds a Master of Arts in Philosophy from the University of Massachusetts and a Master of Military Arts and Sciences from the Advanced Military Studies Program, Command and General Staff College, Fort Leavenworth, Kansas.

Crusader NCO Council

In late 1998, the Crusader Team developing the Army's next-generation 155-mm self-propelled howitzer and resupply system took steps to ensure this system meets the needs of the soldier-user by forming an NCO council. The Crusader Council consists of four NCOs involved in all aspects of Crusader's development, from design to budget.

The Crusader operational concept and system capabilities clearly show that the level of leadership responsibility in a firing battery is raised for each organizational group. Battery commanders may have to perform duties of today's battalion commander, battery lieutenants may perform duties of a battalion S3 or S4 and Crusader Commanders (section chiefs) will command autonomous firing units. It is imperative that the experience and expertise of NCOs be an integral part of Crusader's development.

Master Sergeant Timothy J. Sherman is a former Military Occupational Specialty (MOS) 13E/13C Fire Direction Specialist/Tactical Fire Direction Specialist overseeing software functionality development, human factors engineering and ManPrint implications. Since 1995, he has provided guidance for the action officers who come and go in the Training and Doctrine Command (TRADOC) System Manager-Cannons (TSM-CN) office at Fort Sill, Oklahoma.

Master Sergeant Dennis C. Davis is a former MOS 13B Cannon Crewman overseeing the total program from the Program Manager (PM) Office, at Picatinny Arsenal, New Jersey. His focus is on ManPrint, human factors engineering, survivability and training. He joined the program in 1998 after serving as the first sergeant for C Battery, 4th Battalion, 42d Field Artillery in the 4th Infantry Division (Mechanized) at Fort Hood, Texas.

Sergeant First Class Randal W. Ruth is an MOS 63D Self-Propelled FA Repairer overseeing automotive and structural design, diagnostics and prognostics, hardware integration and logistics from the TSM-CN office. He joined the program in 1998 after serving as the motor sergeant for the Gunnery Department of the FA School at Fort Sill.

Sergeant First Class Steve E. Novak is a 13B overseeing survivability, crew tasks and crew station trainer from the TSM-CN office. He also assists with the modular artillery charge system (MACS), portable inductive artillery fuze setter (PIAFS), and multi-option fuze artillery (MOFA) programs. He joined the Crusader program in 1998 after serving as a Firing Platoon Observer/Controller (O/C) at the Combat Maneuver Training Center in Hohenfels, Germany.

These NCOs ensure the soldier's needs don't get lost in the daily decision-making process of developing a major weapons system—Crusader, the Army's priority program.

MAJ Reginald Brown
Former Asst TSM-CN, Fort Sill, OK

Thinking "Out of the Box"

Baseline Training for the ARNG

by Colonel Mark A. Graham

The Field Artillery (FA) community historically has led the Army in integrating active and reserve forces. Successes in Operation Desert Storm and Bosnia illustrate this fact. And with more than two-thirds of the Army's FA in the Army National Guard (ARNG), we've gone one step further. The FA had the Army's first active component (AC) commander of an ARNG battalion (1996 to 1998) during peacetime. Likewise, our branch also has the first AC commander of an ARNG division artillery, starting in 1998.

I am that officer and command the 40th Infantry Division (Mechanized) Artillery, part of the California ARNG. Our Div Arty also is part of another initiative to integrate the Army's AC and Reserve Component (RC) forces: teaming divisions. Our 40th Division out of Los Alamitos is teamed with the 4th Infantry Division (Mechanized) at Fort Hood, Texas.

Before I took command last summer, I thought I knew about the National Guard—you know, the civilians who show up to train one weekend a month and two weeks during the summer. I was wrong. I knew nothing about what really goes on. And I still have much to learn about these proud citizen soldiers. But one thing I know now is that they epitomize the word "commitment." I'll never refer to Army National Guardsmen as "part-timers" or "weekend warriors" again. It simply isn't true.

This article discusses the three parts of the AC-RC integration process from my perspective in the 40th Div Arty. We must ensure baseline *training to a standard* that's understood and accepted by the AC and the RC. Second, we need a bridge to *share knowledge* about each other. Finally, we must *achieve commonality* of systems.

We have chosen to achieve integration by "thinking out of the box"—breaking the routine of going to the same old training area for the same old training. National Guard soldiers must not feel as though they are going to just another inactive duty training (IDT) weekend at the armory or on another trip to Camp Swampy.

Innovative, well planned and executed AC-RC training and exercises; knowledge of each other and ensuring common systems break that routine. For example, this summer our "out of the box"

thinking continued as the 40th Infantry Division served as the Army Forces (ARFOR) headquarters during the Joint Chiefs of Staff (JCS) theatre ballistic missile (TBM) exercise Roving Sands 99 at Fort Bliss, Texas. The results have been positive. We designed a system to more closely track and influence the Air Force's air tasking order (ATO) process to make it more responsive to the Army Force (ARFOR) deep fight. But that's a subject for an entire article in a future edition.

Training to One Standard. Training is the bedrock of the RC foundation. We need an achievable training baseline and a method to validate training that supports the current unit status report (USR) process and provides our readiness status to the active force.

Section-level is our training focus and must remain so. Training driven from the section up ensures the foundation is trained. This level of training is understood by the AC and RC and is easily measured. As the size of the training unit increases, the complexity of the tasks increases and validation becomes more subjective. Time is the most precious resource and, in the National Guard, we have only 11 monthly drills (48 days) and one, two-week (15-day) annual training (AT) per year. When the time required to plan, execute and assess quality section-level training, conduct professional development programs and complete the multitude of administrative tasks required for training is all added, the time available is quickly gone.

The Guard uses the Army training management system (ATMS) found in *Field Manual (FM) 25-100 Training the Force* and *FM 25-101 Training the Force: Battle Focused Training* to train and capture the many tasks and requirements for deployment. But we need our AC brethren to understand we cannot do everything. We have many pre- and post-mobilization (pre-mob and post-mob) tasks to accomplish before deployment.

Pre- and Post-Mob Training Tasks. After the battalion mission-essential task list (METL) is completed and approved, the battery commander develops his METL. Subordinate to each METL task are sub-tasks. Given the appropriate mission training plan (MTP) for the unit, its leaders (including section chiefs) must then determine which subtasks are required to be trained at the section level before mobilization (pre-mob). These subtasks become the training baseline. The remaining tasks and requirements must be completed after mobilization (post-mob).

Any task above the section level is trained during post-mob. (See Figure 1.) This allows the RC unit to easily provide its training baseline to an active unit so everyone understands its level of training. More resources may allow some units to accomplish additional tasks.

This simple process not only establishes a training baseline for AC and RC units, it also identifies for the section chief the subtasks his section must become proficient in during the training year. The NCO organizes his time to ensure training meets the standards required for each subtask under each battery METL task.

Tasks listed must be discussed and evaluated by the battery senior leaders, the battalion staff and battalion commander. The result is the allocation of resources and time to accomplish each task to standard. The time allotted is adjusted if adequate facilities aren't available or if multiple units must use the same facilities.

Under the "mobilize" METL tasks, a unit lists all state, National Guard Bureau, etc. mobilization requirements. The unit also lists all required training by any level to include standards in training commission (STRAC) requirements. Section chiefs and senior NCOs have one consolidated list of section-level tasks required to train sections to standard. Because all required tasks are included, he has one document that focuses him for each year.

Deliver Field Artillery Fires

Sub-Tasks	Pre-Mob	Post-Mob
• Conduct occupation of a position area. (6-3-42300)	X	
• Conduct emergency fire missions. (6-3-22001)		X
• Perform hasty survey. (6-3-22307)		X
• Establish and monitor the fire direction center (FDC). (6-3-22000)	X	
• Determine firing data. (6-3-22001)	X	
• Prepare the howitzer for the conduct of fire missions. (6-3-22302)	X	
• Conduct fire missions. (6-3-22002)	X	
• Manage and submit records and reports. (6-3-22003)	X	
• Store and transport ammunition. (6-3-22004)	X	
• Unload the howitzer. (6-3-22005)		X
• Direct and control battery/platoon occupation and establishment of firing capability. (6-3-22306)	X	
• Direct and coordinate the delivery of fires. (6-3-21010)	X	
• Direct and control firing platoon/battery operations. (6-3-22010)		X

Figure 1: Battery Mission-Essential Task List (METL) SubTasks. Pre-mob tasks are those the unit focuses its training on during the year. The battery is expected to arrive at annual training (AT) with sections certified in pre-mobilization subtasks. (This list of subtasks is incomplete—only representative of determining subtasks to train in pre- or post-mobilization.)

For the pre-and post-mob METL tasks, each battery provides input to the battalion, each battalion provides input to the brigade and so on. The result is a realistic analysis of the time and resources needed to ensure a unit is trained and ready to deploy.

With the pre-mob tasks trained, Figure 2 shows notional numbers for a unit's assessment of its training days (post-mob training tasks) required to prepare to deploy. Designed by the 40th Div Arty, this worksheet includes the training days required by the battalion or brigade-level.

Figure 3 on Page 38 shows notional numbers for a unit using the 40th Div Arty's deployment planning worksheet. This worksheet helps commanders determine the total number of days needed to deploy, including USR areas.

Many ARNG units attempt to accomplish all the tasks and normally end up *not* achieving the standard for most of them. Trying to do more in the limited time available can result in a lower standard of training and frustrate soldiers and leaders. This can lead to disillusioned soldiers who leave the RC. Soldiers' time is valuable, and leaders must not waste it.

Every section in the 40th Div Arty implements this concept—battalion intelligence section, operations section, battery headquarters section, supply section and more—not just the howitzer sections. Training throughout the year and arriving at AT with trained sections allows the unit to validate the proficiency of its sections and move to the next level of training and mobilization readiness more efficiently.

Section Certification, Qualification and Validation. At AT, the unit certifies, qualifies and validates each section. This process can be aligned with the FA tables.

Section Certification ensures individual soldiers can perform their military occupational specialty (MOS) tasks and the section can perform established tasks to standard. For example, most firing units have safety certification programs, usually certified by a battery commander.

The Section Qualification is on those tasks that are not part of the certification program but are pre-mob tasks. A qualified section must be certified and have achieved established standards in each pre-mob area. For example, the standards for personnel strength is 75 percent, common task training (CTT) is 90 percent, weapons qualification is 90 percent, Army physical fitness test (APFT) is 80 percent, etc. A simple spreadsheet can track the sections' progress. Normally, the battery commander recommends qualified sections to the next higher headquarters for approval and verification.

Section Validation is a formal program administered at least two levels above the section being validated and, preferably, accomplished by personnel from outside the unit. In the 40th Div Arty, we start the validation of our baseline training by sending a firing battery to the National Training Center (NTC), Fort Irwin, California, to serve as the opposing force (OPFOR) artillery and then the Blue (friendly) Force (BLUFOR). AC NCOs and officers serve as observer/controllers (O/Cs) for our units. The Werewolves (FA O/Cs) ensure our sections' crew drill and safety procedures are to standard, or they don't shoot. The NTC rotations allow us to validate our certification and qualification programs and keep junior NCOs and officers fresh in current doctrine,

Number of Training Days Needed to Deploy

- AC units often use cycles (red, amber, green, Go) to focus training readiness.
- NG units normally ramp training and culminate with AT, usually in May-August.

# Days / Tasks	___ Cycle/1st Quarter		___ Cycle/2d Quarter		___ Cycle/3d Quarter		___ Cycle/4th Quarter	
	Personnel Strength		Personnel Strength		Personnel Strength		Personnel Strength	
	<80%*	**>80%**	**<80%**	**>80%**	**<80%**	**>80%**	**<80%**	**>80%**
Individual Soldier Training	12	10	10	8	8	7	6	5
Section Training	6	5	6	5	5	4	4	3
Battery Collective Training & NBC	4	3	4	3	4	3	3	2
Ranges	12	10	10	8	8	6	5	4
Maintenance	5	5	5	5	5	5	6	6
	=	=	=	=	=	=	=	=
Battery or Battalion Total Training Days	39	33	35	29	30	25	24	20
	+	+	+	+	+	+	+	+
Battalion or Brigade Total Training Days	5	5	5	5	5	5	4	4
# Training Days Needed to Deploy**	**44**	**38**	**40**	**34**	**35**	**30**	**28**	**24**

*Fewer soldiers means more days to train due to the fillers a unit receives.

**Place these numbers in the "Unit Training Days" row of the Deployment Planning Worksheet shown in Figure 3.

Legend:

AC = Active Component
AT = Annual Training
NBC = Nuclear, Biological and Chemical
NG = National Guard

Figure 2: Notional Numbers for Unit Training Days Worksheet

operations, training techniques and warfighting.

It's important this entire process is outlined in the unit's training program or standing operating procedures (SOP).

Multi-Level Training. This is training on battery-level tasks or higher and can include some post-mob tasks. An example would be when the commander wants to portray a deployment from a port during AT. The key to multi-level training is to ensure the sections first achieve their baseline training and they've been certified, qualified and validated.

As one level (battery) is training on tasks during a particular weekend, the battalion headquarters (another level) may be training on other tasks. This may occur at different locations, during different months and with different units. In our case, while the firing battery was training with the OPFOR at the NTC, its battalion headquarters (1st Battalion, 144th Field Artillery, or 1-144 FA) was training to be the reinforcing tactical operations center (TOC) for the 3-16 FA and the 2d Brigade of our teamed 4th Infantry Division.

Each firing battery's rotation at the NTC serves as its AT. It helps the OPFOR portray an enemy to the BLUFOR, significantly improving the quality of training at the NTC. The battery completes the force-on-force fight and transitions to the BLUFOR to participate in live-fire. The standards at the NTC are the same for AC and RC.

Each battalion TOC, which includes the operations and the intelligence section (O&I) and a support package, goes through a rotation separately. This cycle is completed every two years. It allows sections to train for a high-value training event and keep employers happy with a normal two-week AT every other year.

The NTC year is a three-week AT period and includes more than section and individual MOS training. It has mobilization, family support, Employer Support to the Guard and Reserve (ESGR) and soldier readiness program tasks plus employer coordination (post-mob tasks). This training allows National Guard soldiers and leaders to serve with active counterparts in a tactical environment.

Our 1-144 FA reinforcing TOC participated in two NTC train-up events at Fort Hood with the 4th Div Arty's 3-16 FA. These events, task force lanes (in the field) and a brigade Janus simulated exercise, combined with a tremendous information exchange and interaction, set the stage for a superb rotation at the NTC in May 1999. Before the rotation, our units attended the leaders training program (LTP) at the NTC.

Our 1-44 FA took on the counterfire fight at the NTC, a huge step that required 1-144 FA to demonstrate its capabilities and 3-16 FA to be open minded and "think out of the box." This was a winning team that developed cohesion during its train ups and rotation.

There are quality opportunities for section-level training at other than the traditional AT sites. The staff section training achieved by coordination with the OPFOR (11th Armored Cavalry Regiment), the NTC Operations Group, the Werewolves, the active duty unit, etc., is invaluable. It ensures our staff sections can achieve their baseline training goals. It also allows us to validate our sections and systems.

Number of Days Needed to Deploy Based on Unit Training, Readiness, Strength and Time of Year/Cycle

- AC units often use cycles (red, amber, green, Go) to focus training readiness.
- NG units normally ramp training and culminate with AT, usually in May-August.

# Days / Tasks	___ Cycle/1st Quarter		___ Cycle/2d Quarter		___ Cycle/3d Quarter		___ Cycle/4th Quarter	
	Personnel Strength		Personnel Strength		Personnel Strength		Personnel Strength	
	<80%*	>80%	<80%	>80%	<80%	>80%	<80%	>80%
100% Recall	2	2	2	2	1	1	1	1
Draw BBPCT	5	5	5	5	4	4	4	4
Pack & Load – Build 463L Pallets	3	3	3	3	4	4	4	4
SRP Ops*	3	3	3	3	3	3	3	3
CL V UBL	2	2	2	2	2	2	2	2
Rail Load	3	3	3	3	3	3	2	2
OCIE Issue*	1	1	1	1	1	1	1	1
Property/POV Turn-In*	2	2	2	2	2	2	2	2
Mandatory Briefs*	2	2	2	2	2	2	2	2
Manifests	1	1	1	1	1	1	1	1
Unit Training Days**	44	38	40	34	35	30	28	24
# Training Days Needed to Deploy	**68**	**62**	**64**	**58**	**58**	**53**	**50**	**46**

*Indicates concurrent tasks.

**Numbers come from the "# Training Days Needed to Deploy" row in the Training Days Worksheet shown in Figure 2.

Legend:

AC = Active Component
AT = Annual Training
BBPCT = Blocking, Bracing, Packing, Containers and Tie Downs
CLV UBL = Class V Unit Basic Load
NG = National Guard
OCIE = Organizational Clothing and Individual Equipment
Ops = Operations
POV = Privately Owned Vechicle
SRP = Soldiers Readiness Program

Figure 3: Notional Numbers for Unit Deployment Planning Worksheet

This approach may mean several separate ATs. This is tough on the higher headquarters staff as they work to support multiple monthly IDTs and ATs, but if programmed over a two-year period, it's achievable. It also creates AT opportunities that virtually assure 100 percent unit participation in AT.

The 40th Div Arty conducted five separate ATs in FY 99. 1-144 FA sent its firing batteries to the NTC in April, July and August. The battalion TOC (O&I) went to the NTC in May as the reinforcing TOC to 3-16 FA. Also in May, the Div Arty's separate, general support (GS) battery, D-144 FA, went to the NTC as part of the OPFOR, then BLUFOR. Our 1-143 FA went to AT at Camp Roberts, California, in June with battery evaluations conducted by the Div Arty headquarters. Also in June, the division fire support element (FSE) and part of the Div Arty S3 section served as the operational fires element (OFE) for Roving Sands 99 at Fort Bliss.

Thinking "out of the box" is more than just "going into the box" at the NTC. It's training at Fort Hood, both in the field and the simulation center. It's participating in exercises with the AC. It's conducting battery evaluations driven by a headquarters two levels up. Each event validates our sections' logistical and tactical capabilities or our headquarter's command and control capabilities. Our readiness must be measurable and visible and understandable by our AC partners.

A key to success is the AC unit's acceptance of our validated baseline. A training baseline recognized Army-wide and used by all units is a start in integrated training. The concept of acceptance and baseline validation applies to cannon and multiple-launch rocket system (MLRS) sections, M1 Abrams tank or Bradley fighting vehicle crews, Apache helicopter crews, etc.

Many AC personnel think all National Guard units are equal. We are not. The 40th Div Arty baseline training program ensures our ARNG pre-mob training is validated every year and, in many cases, every two years at a training center or other major event. Over time, confidence in our training baseline will build cohesion and reduce our post-mob training time as we continue to improve and can add tasks to our training.

The ARNG is spending money to train, but we need to be creative and leverage the fulltime facilities, SOPs, training plans and resources of the active Army. We need to stop the isolationist approach to training. Integration, in the purest sense of the word, is worn opposite our name on our uniform—*US Army*.

The 40th Div Arty's 1-144 FA TOC (O&I) at the NTC serving as the reinforcing TOC for 3-16 FA, a sister battalion from the 40th Division's teamed 4th Infantry Division.

Sharing Knowledge. We must know each other to train and fight together most effectively. We need a vehicle to link the RC and AC, to bridge the gap between the National Guard and fulltime Army.

The AC must understand the National Guard and its make up. We have 54 state and territorial ARNG "armies." The National Guard Bureau (NGB) is designed to tie these separate entities together to speak as one voice. The concept is correct but very hard to do as each National Guard organization ultimately works for a governor of a state or territory.

The state leadership has a wide variety of interests, to include maintaining a state National Guard force that's ready and able to quell unrest or help in natural disasters. Most states spend a small percentage of their money on weapon systems that prosecute war with a hostile enemy. They prefer to spend their money on equipment and programs that improve military support to civil authorities (MSCA)—help in the event of floods, earthquakes, hurricanes, tornadoes, fires and other disasters. AC units need to understand that a combat arms ARNG unit can face some unique modernization and resourcing challenges.

Exchanging officers between the AC and RC is a tremendous way to bridge the knowledge gap. Learning from the inside is the only way to truly get to know the National Guard. The active Army must send the right people to these integrated positions. One potential way to ensure integration success is to treat RC assignments as we do joint duty. We need to give RC duty credit in a career progression similar to credit given for serving in joint coded positions.

Another way to bridge this knowledge gap is to implement the new teaming concept Army-wide. Teaming brings a mutual operational focus and intent. The AC units are not trainers or evaluators of the RC units; they are partners. Teaming is knowing you'll serve or fight together when called. This relationship facilitates the free exchange of information at all levels and in many environments.

The atmosphere in units and the energy of our soldiers is increased knowing that teaming supports a purpose, a recognized need for the talents of our soldiers and leaders. This relationship between the 40th Infantry Division and the 4th Infantry Division has involved events at every level and by every type unit.

The 40th Infantry Division may not have all the most modern systems and capabilities, but we can use many of the 4th Infantry Division's programs and systems. We're already sharing troop leading programs, certification programs, risk assessments, SOPs, etc. These link our two divisions and help 40th Div Arty units to better manage a limited resource: time. We train to the same standard as the active force; how-

ever we do it on a different timeline. Teaming bridges the gap between the National Guard and the active Army and serves as the consistent link needed to facilitate readiness.

Achieving Commonality. We need systems that allow for smooth AC-RC integration, regardless of the level and whether we're involved in nation building, peacekeeping or any other military operation.

We are currently "in our own box" regarding systems. The 54 states and territories each have unique systems, including personnel, training and logistics. There are 54 good ideas out there in many areas. We must get out of this isolationist "box."

In many cases, we must come up with "work arounds" because the systems don't interface. For example, when National Guard units go to the field, we can't use a tactical Army combat service support computer system (TACCS) box to input to the standard installation/division personnel system (SIDPERS) because we don't have this equipment. The ARNG personnel system does not link to the active Army's SIDPERS.

To deploy an ARNG target acquisition battery to Bosnia in 1998, we had to drop our Guardsmen from the National Guard personnel system and input them into SIDPERS. When they returned to California, we had to drop them from the AC system and reenter them into the ARNG system. This one example of lack of commonality took weeks to resolve. Time is the most precious asset in the National Guard and "uncommon" systems detract from Army integration.

Standardizing State Systems. Our ability to use the same systems as the active Army in garrison and field environments is a *must*. We need to "get out of the state box" and look at what's right for the US Army.

We must synchronize our systems to ensure our officer exchange programs and baseline training integration is not degraded because each state uses its own systems. Officers who serve in National Guard units should be able to translate that experience to other officers and military leaders. But if every state is different, the integration we seek will be virtually unachievable.

Schools. We send soldiers and officers to Training and Doctrine Command (TRADOC) schools and when they return to their units, they do not see the same systems they trained on in school. We then send them to a course to teach them the work around system. We must use the same systems.

Automation (Garrison and Tactical). Integration is the goal, and interoperability is the result needed to achieve integration. We must have systems that can talk to each other. Our systems must be flexible enough to use them in garrison and field environments. For example, repair parts requisitions are not integrated. Part of this problem is an automation issue, and part is due to the complexity of transferring money from the AC to the RC. A review of the interoperability of systems is needed for real integration.

Personnel. We need to ensure service by RC soldiers and units is a smooth integration process when activated for a Federal mission. Systems' disconnects, such as the Bosnia personnel example given, affect soldiers and families.

Another example of lack of commonality causing personnel challenges is different means of evaluating officer qualifications. The AC uses an officer record brief (ORB) to list a wide variety of information on each officer. This document summarizes an officer's career on one sheet of paper. Many National Guard states use biographies to achieve this function. As the AC-RC integration continues, we need a common method of evaluating an officer's qualifications. The AC has a succinct, standardized system that has proven effective over time for a variety of branches in a large force; the National Guard needs to adopt this system.

Financial. We need to improve the "cross-component resourcing" system currently in use between the AC-RC. We need to simplify the system and make it more flexible to support soldiers and training.

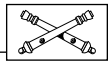
The "colors" of money are not the same for both components, and some legal restrictions preclude moving money from category to category. Although this problem will take a long time to correct, we can review and streamline our current budgeting and financial accounting procedures in the short term to facilitate more efficient integration.

Training. We face similar integration issues with training. An AC NTC rotation is scheduled at the Forces Command (FORSCOM) planning conference more than one year ahead of the event. The division involved does not have to lock in its troop list of units training for a rotation until 280 days prior to the rotation.

If the division waits until 280 days out to decide to include an National Guard unit in the rotation, it's very difficult for the Guard unit to participate—plan and resource the training and inform families and employers. The "informing" part is a very important part of the participation formula. We must continually remind ourselves that these citizen soldiers make a living at a civilian job and are not putting food on their table based on service in the National Guard.

We must make all systems interoperable to facilitate taking care of soldiers, families and employers—from SIDPERS to repair parts to promotions to soldier readiness and USRs. Nesting these systems together would help us to fight as one team.

The concepts of baseline training, shared knowledge of each other and commonality of systems is needed to make this great Army better in the 21st century. The young soldier warriors of our AC and RC units are our land power future as one integrated force. And as Americans view their citizen soldiers up close and at home, we maintain a vital connection to the people we serve. *Lead the way, FA!*



Colonel Mark A. Graham took command of the 40th Infantry Division (Mechanized) Artillery, California Army National Guard (ARNG), in September of 1998 as the first AC officer to command an ARNG brigade-level unit in peacetime. In his previous assignment, he was the Chief of the Field Artillery Branch in the US Army Personnel Command, Alexandria, Virginia. He also commanded the 1st Battalion, 17th Field Artillery, part of the 75th Field Artillery Brigade, III Corps Artillery at Fort Sill, Oklahoma. While at Fort Sill, he was the Chief of the Field Artillery Proponency Officer in the Training Command. Among other assignments, he served as S3 of the 1st Armored Division Artillery and S3 of the 2d Battalion, 29th Field Artillery in the 1st Armored Division, both in Germany; and as the G1 for VII Corps Artillery, deployed to Saudi Arabia during Operations Desert Shield and Storm. He commanded two batteries: one in the Field Artillery School Brigade and one in the 2d Battalion, 18th Field Artillery, the latter part of the 212th Field Artillery Brigade in III Corps Artillery. He holds two master's degrees: an MBA from Oklahoma City University and MS in National Security Strategy from the National Defense University in Washington, DC.

FSCATT for the Gunnery Team

The Field Artillery (FA) has its first gunnery team trainer. The fire support combined arms tactical trainer, or FSCATT as it is commonly known, will take training to a new level as we enter the 21st century. FSCATT trains the M109A5 155-mm self-propelled howitzer crew, fire direction center (FDC) personnel and forward observers (FOs).

The Components. FSCATT consists of three components—the howitzer crew trainer (HCT), an FDC simulation system (FDCSS) and the FO trainer, the latter called the Guard, unit armory device, full-crew interactive simulation trainer (GUARDFIST II). FSCATT can accomplish the training in three separate modes. In the stand-alone mode, each component conducts training independently. In the inactive mode, two of the components are linked—for example, the HCT and the FDC. In the closed-loop mode, all components are linked and training is conducted as a gunnery team.

The "headliner" for the FSCATT system is the HCT that replicates the firing of a real howitzer all the way down to the cant and recoil. The howitzer crew receives a fire mission and performs the crew drill to fire the mission. The HCT requires the crew to select the appropriate shell, fuze and propellant combinations; lay the howitzer for deflection and quadrant; ram the round; and fire it. The section chief must ensure the appropriate commands are used and proper ammunition is loaded and fired.

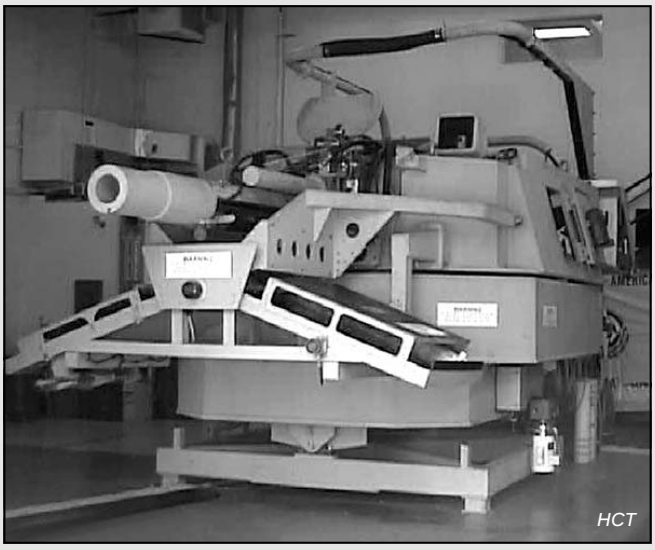
The gunner has a synthetic sight allowing him to use a collimator, aiming posts or a distant aiming point, depending on the training scenario. The assistant gunner must ensure the quadrant is set properly. All bubbles must be level. If the steps are not completed properly, mistakes will be reflected on the after-action report (AAR).

The FDCSS is wired to the lightweight computer unit (LCU). It comes equipped with two training scenarios using Fort Sill terrain or the instructor can create additional ones. The system causes the FDC to respond to a large number and variety of fire missions and can act as both the observer and the howitzer, providing real-time data to the FDC in the stand-alone mode.

GUARDFIST II provides the FO training portion of FSCATT. It is a computer-based trainer that uses virtual (three-dimensional) terrain. The observer identifies a target and sends a fire mission using a forward-entry device (FED) or by voice to the FDC, which forwards the submission to the HCT. Rounds are fired by the HCT, the impact is displayed on the screen and the observer follows the usual adjustment procedures.

Performance Feedback. The recording and scoring of all activities in the HCT brings a new dimension to training. The system automatically scores eight items for the AAR: deflection, quadrant elevation, bubble level, projectile, propellant, fuze and fuze settings, aiming points and mission time.

In addition, an instructor-operator station (IOS) is positioned so the operator can monitor all the crew's activities



HCT

inside the turret via two cameras and microphones mounted inside. The ammo handlers are observed and graded by the instructor, who manually inputs data into the AAR database.

Ammunition and Fuzes. The ammunition set that comes with each FSCATT is a complete inventory of 155-mm projectiles, fuzes and powder charges. The only round not in the FSCATT inventory is the Copperhead because all 155-mm units have a Copperhead trainer.

Soldiers can repeatedly practice crew drills to fire ammunition and fuze combinations they've never fired before. FSCATT does not require a special range to fire special munitions, such as dual-purpose improved conventional munitions (DPICM) or other high-dollar munitions. And FSCATT's ammunition is "recycled"—units will never run out of ammo.

Fielding FSCATT. The M109A5 version of FSCATT is being fielded to National Guard units, one per battalion, with six systems fielded to the Field Artillery Training Center at Fort Sill, Oklahoma. Sixteen of the total 32 systems were fielded by the end of August with the remaining 16 to be fielded starting in July of 2000.

The M109A6 version of FSCATT is scheduled to start fielding to active Army units at the end of FY00. The current plan is to field eight trainers to Fort Sill, two to Korea and two to Germany with the remainder fielded two per division. Because of funding issues, the M109A6 FSCATT may not be fielded to some active units or any ARNG units.

If units have questions, call the Depth and Simultaneous Attack Battle Lab (D&SA Battle Lab) at Fort Sill: DSN 639-3026 or 3706 or commercial (580) 442-3026 or 3706. *Train to Shoot-Not Shoot to Train!*

George A. Durham, Deputy
SFC James B. O'Dell, Ops NCO
D&SA Battle Lab
FA School, Fort Sill, OK

Distance Learning

MLRS 3x6 Conversion for the Army National Guard

by Captain Robert F. Markovetz, Jr., ARNG

The 2d Battalion, 147th Field Artillery, South Dakota Army National Guard (ARNG), is one of the first two Army National Guard units to go through the multiple-launch rocket system (MLRS) 3x6 conversion process using video teletraining (VTT) and CD-ROM-based instruction. Distance learning is a more exciting option than the traditional correspondence course approach to instruction for mobilization-day (M-Day) soldiers. Soldiers interact with an instructor during the VTT sessions and get immediate feedback on their progress.

There are four phases to the MLRS 3x6 conversion process. Phase I—Common Core Training (VTT and CD-ROM-based instruction); Phase II—Military Occupational Specialty (MOS) Qualification; Phase III—Section and Platoon Certification; and Phase IV—Battery Certification. This article focuses on the VTT and CD-ROM-based training in Phase I.

The Process. Traditionally, a soldier signs up for a correspondence course, waits several weeks for the course to show up, completes the course, returns it for grading and then waits several weeks for his score. Rather than spending several months on correspondence courses (many of which do not get completed), soldiers breeze through the CD-ROMs during weekend drills—two for MOS 13M MLRS Crewmen and three for 13P MLRS Specialists.

CD-ROM-based instruction provides a multi-media presentation to the soldier and allows him to score his practical exercises as he works. A soldier can complete the modules at his own pace and review the modules as necessary; he is more apt to complete the training. The audio and video clips on the CD-ROMs enhance the instruction by capturing the soldier's attention and provide a visual demonstration of the task to be performed.

The VTT sessions allow the soldier to ask an MOS-qualified, experienced instructor questions on the material covered on the CD-ROMs from a list the soldier has written in advance. On occasion, questions can be faxed to the VTT instructors who provide the answers in the next VTT session. The quizzes presented during the VTT sessions add to the instruction and help the students retain the course material.

Growing Pains. As the first unit "in the barrel," we had a number of growing pains—site selection problems, CD-ROMs still under development and transmission challenges during the VTT sessions. The most important thing was to keep the lines of communication open between Fort Sill, the training sites, the VTT communications links and our units. We conducted a weekly test of the VTT links each Friday, which was invaluable. It allowed us to test our con-

2-147 FA, SDARNG

nectivity for that weekend's training, share ideas on how to make the training more exciting for the M-Day soldiers and exchange other information to make the training successful.

Our worst fear was to have soldiers show up for training and the equipment not work. On the first weekend of the 13P training, this almost happened. The 13P CD-ROMs were sent overnight to the wrong location. We were able to download the course from the home page of the Warfighting and Integration Doctrine Directorate (WIDD) of the Field Artillery School.

The night before our first computer training session, personnel in charge of the classroom we were to use installed new surge protectors on their network computers and changed some of the software. We weren't able to download the first six 13P modules until midnight. It took us more than an hour to download the files, another hour to upload them on the network and another two hours to test the modules. Everything was installed and checked out by 0400. When the soldiers arrived at 0800, the course ran flawlessly—we dodged that bullet.

Another near miss was a VTT session that didn't go as planned. The video telecommunications link didn't come up, so we had to go to our back-up plan. We used a POLYCOM speakerphone and copies of the instructor's slides on an overhead projector until the video link was established. This back-up method worked well in the facility we were using. There are other methods available, such as "Librarian," that are taught in the VTT course manager's class.

Course Manager's Class. This class teaches how to set-up the CD-ROM modules, read the diskettes used to track the soldiers' progress on the CD-ROMs and operate the back-up systems for the VTT sessions. Personnel selected to be VTT course managers should complete the 13M or 13P CD-ROMs. This prepares them to answer students' questions and gives them an idea of the time it will take for their students to complete the modules.

We put together a binder and a training package for our VTT course managers that allowed us to have a different VTT course manager each weekend. Each binder had a point of contact (POC) section and copies of the course schedule, questions and answers for each module, after-action reviews (AARs) from the previous sessions and head-count sheets. The training packages had the students' 3.5 diskettes, the CD-ROMs (we used these as back-ups), blank video tapes (for recording the VTT sessions), manuals and headphones for the course. Each student *must* have a set of headphones. There is an audio portion to the instruction, and 23 or more computers with external speakers blaring at a different point in the instruction is chaotic, at best.

Also, each student needs a copy of the manual for the piece of equipment he is studying. The 13Ps need the manuals for the lightweight computer units (LCUs) plus *FM 6-60 Tactics, Techniques and Procedures for MLRS.* The 13Ms need FMs for the heavy expanded-mobility tactical truck (HEMTT), the M270 launcher and the single-channel ground and airborne radio system (SINCGARS). We encouraged the soldiers to highlight and tab the manuals because these are the same manuals they'll use in their MOS-qualification portion of the training (Phase II) when they start using the actual equipment.

Some soldiers completed the modules faster than others. For these "fast trackers," we brought in global positioning systems (GPS), LCUs and other training aids to provide additional training opportunities and enhance the quality of instruction. The soldiers enjoyed the opportunity for some hands-on training.

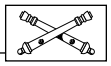
Planning and Coordination. There is a great deal to be done before starting this type of training. One of the most critical parts of planning is selecting the training site. We chose two of our state-supported schools for our sites. The site for our 13M instruction had to have at least 80 486-megahertz computers with soundcards and video teleconferencing (VTC) facilities for 80 people plus be available on weekends. The site for the 13P had similar requirements, but it only had to accommodate 25 personnel.

Northern State University in Aberdeen was able to facilitate the 13M course, and Lake Area Technical Institute in Watertown was chosen for the 13P course. Personnel at both sites provided technical assistance in the computer labs and VTC rooms. Both schools loaded the courses onto their networks, allowing faster processing times and eliminating problems when soldiers switched CD-ROMs. We fed the soldiers at the sites and billeted them at the armories at night. Each firing battery had its own weekend of VTT and CD-ROM training due to the size of the facilities.

Costs. When arranging for facilities, units must be sure to get a list of all the costs involved and put everything in writing. Some of the expenses involved are video conferencing time, computer lab fees, uploading of the software onto the network, computer technician wages and meals. We also had to transport our soldiers by Government Services Administration (GSA) busses and vans to the training sites from our different armories.

With diminishing training funds, distance learning training is the wave of the future. It enables large numbers of soldiers to be trained for a moderate expense and also reduces travel time. The cost of sending our soldiers to Fort Sill each drill weekend to receive the same training would be in the hundreds of thousands of dollars. We spent approximately $32,000 for the electronic training. Also, it would take an entire drill weekend to fly our soldiers to and from Fort Sill, but it only took a few hours for our soldiers to travel from their armories to the in-state training sites.

There are many advantages to using distance learning to begin the new equipment training process for a weapons system conversion, such as MLRS to 3x6. The training is interesting, flexible and challenging for the M-Day Guardsman. The soldiers can work at their own pace, get immediate feedback and work in a multi-media environment that fosters learning.



Captain Robert F. Markovetz, Jr., South Dakota Army National Guard (SDARNG), is the S4 (M-Day) and Brigade Logistics Officer (Full-Time Technician) for the 147th Field Artillery Brigade. His previous assignments include serving as the Operations Officer (M-Day), Battalion Training Officer (Full-Time Technician), Battery Commander and S2 for the 2d Battalion, 147th Field Artillery, also part of the 147th Field Artillery Brigade and in the SDARNG. While on active duty, Captain Markovetz served as the Targeting Officer for the 2d Battalion, 3d Field Artillery, part of the 1st Armored Division in Germany; Deputy Operations Officer, Joint Special Operations Task Force for Operation Provide Comfort II in Turkey; and Deputy G3 Movements Officer for the 59th Ordnance Brigade in Germany, among other assignments.

ARNG Paladin NET
Helping Units Help Themselves

By Major Kerry J. Loudenslager, ARNG

Paladin new equipment training (NET) has been a tremendous success story for Army National Guard (ARNG) units fielding the M109A6 Paladin howitzer system. During the past two years, eight ARNG Field Artillery (FA) units have fielded the Paladin with 10 additional FA units to undergo Paladin fielding in the next two years. (See the figure.)

The purpose of this article is to highlight areas where ARNG units can help themselves succeed during the one-year Paladin NET process. NET is subdivided into three phases—leader training, inactive duty training (IDT) and annual training (AT).

Leader Training. Phase I is a two-week resident training course at Fort Sill, Oklahoma, that provides individual training for specific leaders within the firing batteries (Course 2E-F165/041-F9 Paladin Commander's Course). The target audience consists of 27 students: three firing battery commanders, six platoon leaders, six fire direction officers (FDOs), six platoon sergeants and six gunnery sergeants.

(Photo by Kevin Tucker, Fort Sill TSC)

Units must identify and stabilize these key leaders prior to the start of Phase I. The concept is to keep them in their designated positions throughout the entire NET cycle. If possible, units should stabilize them for two years to help the unit achieve section-, platoon- and battery-level certifications.

The proponent for Phase I leader training is the Weapons Branch of the Cannon Division in the Gunnery Department of the Field Artillery School, Fort Sill. Points of contact are Major Robert G. Hall, hallr@doimex2.sill.army.mil or Sergeant First Class Robert K. File at DSN 639-4483/5424 or commercial (580) 442-4483/5424.

Inactive Duty Training. Phase II consists of IDT assemblies that focus primarily on Military Occupational Specialty (MOS) 13E Fire Direction Specialist and 13B Cannon Crewman individual training. Each visit consists of 16 hours of programmed instruction and is conducted at a central location in the battalion area of operations. In some cases, students may live a considerable distance away from the training site and need to travel one day early. One hundred percent attendance is important.

Again, units should attempt to stabilize personnel in their assigned positions prior to NET. Units hurt themselves by shifting key personnel immediately before Phase III of Paladin NET.

ARNG units undergoing Paladin transition must be proficient with the single-channel ground and airborne radio system (SINCGARS) and precision lightweight global positioning system receiver (PLGR) before starting Paladin NET. This is important because the Paladin howitzer relies on digital SINCGARS communications to conduct operations.

Units also are responsible for providing classrooms and equipment for each training assembly. Equipment should be properly set up and tested before the training starts.

Maintenance NET (MNET) is an important part of the Paladin fielding pro-

cess. MNET focuses on individual training for 31U Signal Support Systems Specialist, 45D Self-Propelled FA Turret Mechanic, 45K Armament Repairer and 63D Self-Propelled FA Repairer. United Defense Limited Partnership (UDLP) provides MNET for all scheduled visits. MNET questions should be addressed to James Hechinger at UDLP by calling (717) 225-8206.

Annual Training. Paladin NET Phase III is a three-week AT period that zeroes in on individual and collective training. The first week consists of individual training for key leaders (battalion commander, executive officer, command sergeant major and battalion staff); for 13Bs (chiefs of section, gunners, ammunition team chiefs and drivers); and for 13Es, (FDOs, fire direction NCOs and lightweight computer unit, or LCU, operators). The second week is collective dry-fire training. The third consists of collective live-fire training.

The following comments will help units help themselves during Phase III training:

• Ensure all required training areas, motorpools, classrooms, equipment, ammunition, etc. are coordinated before AT.

• Orchestrate a maximum effort to achieve 100 percent personnel strength before fielding (especially key leaders in MOS 13B and 13E). Units must maximize participation by scheduling NCO educational system (NCOES) and other schools around NET. Commanders may need to solicit support from employers to allow soldiers to participate in the entire three-week AT.

• Submit equipment requests to achieve 100 percent of authorized levels. Critical end items include position and azimuth determining systems (PADS), M577s and LCUs. Paladin NET requires two operational platoon operations centers (POCs) per battery.

• Ensure the local range control has a Paladin safety plan that will facilitate Paladin training. In most cases, Paladin tactics require dispersion. During tactical NET operations, units will *not* occupy fixed firing points (FPs). Operations personnel must check with range control to verify that training area maps are current and accurate.

• Have survey, communications and maintenance personnel readily available (on call) during advance party and NET operations. Units should be on common survey for all systems throughout NET—to include fire support teams (FISTs).

Units Completed NET	
1-114 FA	Mississippi
1-126 FA	Wisconsin
1-127 FA	Kansas
4-178 FA	South Carolina
1-201 FA	West Virginia
1-202 FA	New Mexico
1-214 FA	Georgia
2-222 FA	Utah
Units to Complete NET FY00	
3-115 FA	Tennessee
2-114 FA	Mississippi
1-113 FA	North Carolina
278 ACR (How Batteries)	Tennessee
1-141 FA	Louisiana
1-118 FA	Georgia
Units to Complete NET FY01	
1-178 FA	South Carolina
1-148 FA	Idaho
2-138 FA	Kentucky
2-146 FA	Washington

Army National Guard Paladin New Equipment Training (NET).

• Strive to achieve training proficiency on SINCGARS frequency hopping (voice and digital) before AT.

• Coordinate meteorological data, radar and FIST support. FIST support personnel must be proficient with SINCGARS, the forward-entry device (FED) and the ground/vehicular laser locator designator (GVLLD).

• Be aware that the command safety certification program is the unit's responsibility.

• Be prepared to shield the target training audiences from additional duties such as kitchen police (KP), guard duty, etc., during NET. These soldiers must focus on Paladin training.

• Have unit maintenance personnel conduct equipment services around training, preferably before or after AT.

• Ensure proficiency with voice and digital fire mission processing before AT. This starts with the target acquisition means (i.e., FIST) through the fire support element (FSE), battalion FDC to the POCs and then howitzers.

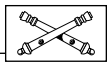
• Coordinate for the required number of white and green bag propellants and lots with the Paladin NET to ensure proper terrain management. Units need one lot of white bag and one lot of green bag propellant to conduct a base lot calibration for the entire battalion.

• Be aware that the unit won't be certified at the section-, platoon- or battery/battalion-levels after completing NET. NET is a "crawl/walk" process that provides the tools to safely and efficiently operate the Paladin system. After NET, units must establish their own training and certification programs.

• Don't alter the interior or exterior configuration of the M109A6 Paladin howitzer components before the end of NET. If any component is altered, the Program Manager (PM) Paladin warranty may become void. Howitzers issued before AT are used only for MNET. The first time units will conduct 13B NET on the actual Paladin howitzers will be during Phase III (AT).

Units that aggressively apply rigorous standards will find Paladin NET fun and rewarding. Continuous communication and coordination between the unit and the Paladin NET team is absolutely essential to ensure success.

The proponent for Paladin NET is the Paladin Division of the Gunnery Department at the FA School. The POC is Major Loudenslager with an email of loudenslagerk@doimex2.sill.army.mil or Sergeant First Class Charles J. Daniels at DSN 639-5301/4418 or commercial (580) 442-5301/4418.



Major (Promotable) Kerry J. Loudenslager, an Active, Guard/Reserve (AGR) Title X officer originating from the South Dakota Army National Guard (SDARNG), is the Chief of the Paladin Division, Gunnery Department at the Field Artillery School at Fort Sill, Oklahoma. His previous assignments include serving as Brigade Operations Officer, Brigade Fire Control Officer (FCO), Brigade Counterfire Officer and S2 for the 147th Field Artillery Brigade, SDARNG; Operations and Training Officer in the Plans, Operations and Training Office at the State Area Command (STARC), SDARNG; and Chief of the Lance Branch in the Gunnery Department at the Field Artillery School. He commanded B Battery and was the Battalion Assistant Operations Officer, Battalion Liaison Officer, Battalion Maintenance Officer, A Battery Executive Officer and Fire Direction Officer (FDO), all in the 1st Battalion, 32d Field Artillery in the 41st Field Artillery Brigade, V Corps, in Germany. Major Loudenslager is a graduate of the Command and General Staff College, Fort Leavenworth, Kansas, and holds a Master of Arts in Human Resource Development from Webster University, St. Louis, Missouri.